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NEW FRONTIERS IN TECHNICAL ANALYSIS

**Effective Tools and Strategies for Trading
and Investing**

Paul Ciana, CMT

BLOOMBERG PRESS

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*This book is dedicated to my family,
in particular,
to the memory of my Grandmother, Charlotte Cianiulli,
and her 92 years of inspiring life, laughter, and love.*

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Preface

In the struggle for survival, the fittest win out at the expense of their rivals because they succeed in adapting themselves best to their environment.

—Charles Darwin

This book has been assembled in response to the growing demand to diversify an investment strategy through the numerous styles of contemporary market analysis and the ongoing search for increasing alpha. Although the most frequently used style of analysis is fundamental, the adoption of technical analysis as an adjunct or preferred style of analysis is becoming increasingly sought after and accepted.

This evolution has become visible in many ways. One observation discussed in Chapter 1 is the tracking and measurement of the use and growth of charts and technical indicators in different regions of the world. Another observation is the growth rate of the number of market participants specializing in technical analysis. In 2010, the Market Technician's Association announced there were more than 1,000 active Chartered Market Technicians (CMTs) residing in 76 countries, representing a 100 percent increase in only four years. Yet another measure is the growing interest in and reliance on the development and implementation of innovative technical tools and strategies that capitalize on existing methods, such as those presented by the contributors to this book.

The bridge between fundamental and technical analysis continues to strengthen and the sophistication of each continues to develop. About a century ago, Charles Dow, who was a journalist, entrepreneur, and technician, created some of the world's most popular equity indices, which are relied on today by all market participants. About 30 years ago, the fundamental term *relative strength* had only one meaning, until the publication of the *Relative Strength Index* by established market technician J. Welles Wilder. The

theories of fundamental analysis and technical analysis are evolving together and affecting each other at rates faster than ever before. Therefore, a goal of this book is to properly document and share the gains of this evolution.

This book comprises contributions from five individuals who have spent most of their careers, if not all, studying the financial markets through a “technical” lens with the goal of identifying, developing, and implementing effective trading and investment strategies. These strategies attempt to capitalize on the experiences in their careers and explain how existing market actions will impact the future. Their methods are based on the existing body of knowledge of Technical Analysis, and have evolved to support and appeal to technical, fundamental, and quantitative analysts alike.

I view the contributors as accomplished market participants who do everything they can to continually adapt to the modern-day securities exchange industry. They are constantly modifying and refining their methodic approaches to the markets in order to achieve success, and I feel privileged to be a part of the sharing of their strategies.

These five individuals bring with them a combined 150 years of market experience. Their methods, at some point in time, were likely somewhat simplistic, such as the application of moving averages, overbought and oversold momentum indicators, trending indicators, volume analysis, and so forth. We could ask them to recall how they would use these studies, as I’m certain they remember from their earlier days, but this has been done many times with experienced market professionals.

Rather, Chapter 1 begins with the release of previously undisclosed evidence about the most preferred chart types and technical studies. It continues into a lucid and simple summary of the essential elements of those chart types and indicators. The following chapters continue with in-depth explanations of the work of Julius de Kempenaer, Phil Erlanger, Cynthia Kase, Andrew Kezeli, and Rick Knox. All of the chapters can be considered work that has mostly never been seen before, and if seen, never in this much detail. Where some parts of their work is considered intellectual property and therefore proprietary, subjective discussions provide readers with challenging theories and ideologies for their own use. Other parts certainly are not, and hopefully some, if not all, of the work contained in this book will be published again and again, in the same way that Gerald Appel’s MACD indicator was 40 years ago.

Chapter 2 presents the work by Julius de Kempenaer on formalizing a sector rotation strategy for world markets by tracking relative performance, the momentum of, and implementing leading visualizations to hasten the process

of this traditional strategy. Chapter 3 presents the quantitative work by Phil Erlanger on investing with seasonality and his four-step approach to trading using Bias, Setups, Triggers, and Monitoring. Chapter 4 is a quantitative and statistical approach by Cynthia Kase, who evolved from an engineer into a market technician. She explains her trading strategies using a multitude of tools that address challenging subjects such as appropriate stop levels, adjusting for volatility, and the confluence of multiple timeframes. Chapter 5 by Andrew Kezeli discusses how Trade Angle Securities has incorporated the advantages of the unorthodox yet extremely powerful Market Profile into a suite of technical indicators that are applied to the more traditional bar chart. Finally, Chapter 6 takes the work of Rick Knox, formerly a pit trader and chart software developer, and emphasizes the importance of improving the clarity of indicators through the use of color and a variety of types of technical tools such as Elliott Waves, cycles, velocity, and also the agreement of multiple timeframes. Additional information on the background of the contributors is provided at the back of the book.

Most of the book's contributing authors also maintain web sites, which are mentioned throughout the text. If you're interested in exploring these valuable resources, go to any of the following:

www.bloomberg.com/professional/charts_launchpad/
<http://tamresearch.com/>
www.erlanger.com/
www.kaseco.com/
www.atmstudies.com/
www.tradeangle.com

These and other useful resources are listed in the Recommended Reading section.

Whether you're a novice or a seasoned veteran in the subject of technical indicators, there is much to be gained by reading this book. An associate on a trading desk or a beginner in the subject of technical analysis has the opportunity to learn about the universally accepted studies, how to use them, and how the evolution of technical analysis has improved them. An analyst or portfolio manager has the opportunity to discover tools that can bolster his performance by studying the thought-provoking material on seasonality, sector rotation, and market distributions. Technical analysts/strategists will learn about groundbreaking tools and data visualizations to add to and possibly replace some of their preferred indicators. Creative minds will be challenged to

brainstorm on which calculations, visual cues, and risk/reward ratios will work the best for them when trading, investing, and creating their own indicators.

On behalf of all of those involved with the writing and editing of this book, thank you for considering this work. We feel confident you will not be disappointed and trust that this book will sharpen your investment strategies and enhance the way you view the market.

Acknowledgments

I would like to express my appreciation for all who were involved in the construction of this book and for their influence on my career.

This includes, but is not limited to, many of my colleagues at Bloomberg LP in the Application Specialist, Sales, Product, Analytics, R&D, News, and Markets groups. In addition, I thank the members and employees of the Market Technicians Association, those who encouraged and supported me in the quest to achieve the Chartered Market Technician (CMT) designation, many of the clients of Bloomberg LP, and, of course, each of the contributors to this book: Julius de Kempenaer, Phil Erlanger, Cynthia Kase, Andrew Kezeli, and Rick Knox.

More specifically, I would like to thank Eugene Sorenson, Karsten Gaebele, and David Keller. You have been great mentors, colleagues, and friends during this project and throughout my career. I look forward to our future endeavors.

CHAPTER 1

Evidence of the Most Popular Technical Indicators

Paul Ciana, CMT
Bloomberg LP

The application of various technical indicators is nothing new to the majority of financial market participants. The opportunity to trade a moving average cross or an overbought market is a frequent observation during normal market hours worldwide. The challenge that many ponder is which technical indicators to use. In an effort to resolve that challenge, market participants wonder what others are using. If this information can be identified and verified, market participants will likely monitor those indicators to understand what others are thinking and seeing. Therefore, it might be possible to develop a trading strategy based on the most popular technical indicators.

Although I cannot prove the latter as statistically true, this chapter reveals a hierarchy of the most popular technical indicators on the Bloomberg Professional Service. Then it presents the indicators' commonly accepted signals. But first, it attempts to define what *technical analysis* represents; it would be ill advised to discuss only indicators when technical analysis is much more than that.

Defining Technical Analysis

Sometimes it seems that the majority of market participants may be misled about the broad scope of theories used in the application of technical analysis when trying to understand and forecast the financial markets. My gut feeling is that if we were to sample a random group of market participants to define technical analysis, they would present terms such as *price*, *moving averages*, *charts*, and *oscillators*. A simple Internet search confirmed my suspicions about what words we would hear. Some of the definitions that can be easily found do a good job of describing parts of the theory, while others should not be read by a technician who lacks a sense of humor.

Three of the better definitions are:

1. Analysis of past price changes in the hope of forecasting future price changes.
2. Analysis based on market action through chart study, moving averages, volume, open interest, formations, and other technical indicators.
3. An approach to forecasting commodity prices that examines the patterns of price change, rates of change, and changes in volume of trading and open interest, without regard to underlying fundamental market factors.*

Technical analysis offers much more than these definitions suggest. The first is so generic it could be used to describe many fields of analysis. It suggests market participants study prices and fails to elaborate on the variety of data types that can be analyzed. The second mentions *market action*, a common term used in describing technical analysis, but then repeats itself by listing the data sets that represent market action. It assumes that most of the methods of a technical analyst are focused on technical indicators and therefore it does not elaborate on the variety and depth of the theories in this field of study. The third suggests that technical analysis is used in the commodity markets, which is true, but the application of technical analysis is not restricted to only the commodity markets. Technical analysis can be applied to nearly all types of financial markets.

The methods of a technician span a wide array of theories and use countless different tools to strategize, quantify, and discuss the financial markets in ways that other types of analyses don't or can't. One of my goals in writing this

*Definition one from wordnetweb.princeton.edu/perl/webwn; definition two from www.worldwidemoneyexchange.com/terminology.html; and definition three from www.lind-waldock.com/education/glossary/technical_analysis_terms.shtml.

chapter is to create a one-sentence definition that broadens the scope of the known definitions. It has proved to be very challenging to come up with one sentence that defines *technical analysis* in its entirety. I believe this is a debate for the entire industry to continuously weigh in on, especially as technical analysis evolves; furthermore, I do not mean to suggest that any one definition would ever be universally acceptable. At present, and with the input of a few friends, I lean toward the following definition:

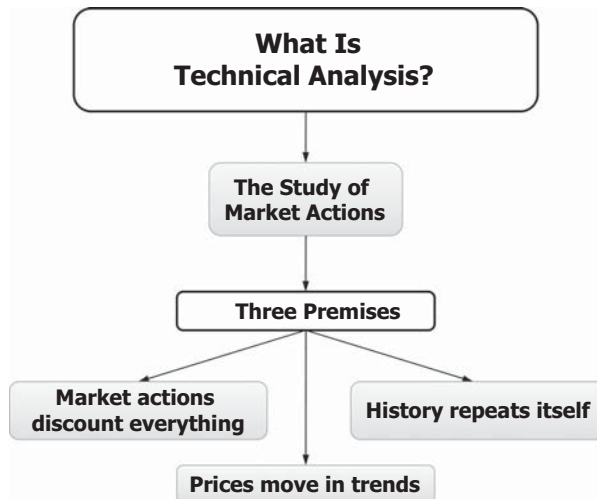
Technical analysis is the extraction of information from market data into objective visualizations through the use of mathematics with an emphasis on investor behavior and supply and demand to explain the current and anticipate the future path of the financial markets.

This definition suggests that technical analysis comprises the following five attributes:

1. *Market data*: Represents a variety of data sets that includes the most frequently used ones such as price, volume, and open interest, but does not exclude data sets such as volatility, ticks, ratios, and dividend yields.
2. *Objective visualizations*: A preference for analyzing information in a chart, but visualizations could be more than a chart, such as a figure, table, scatter plot, or query of results.
3. *Use of mathematics*: The application of measurements and calculations to measure the market actions of an individual security or a group of securities.
4. *Emphasis on investor behavior and supply and demand*: We have a bias for identifying rational and irrational market actions and look for imbalances in the availability or desire for a security.
5. *Explain the current and anticipate the future*: We are attempting to understand what the market is telling us about itself to estimate where it may go in the future.

To further explain the definition, we will summarize the three premises of technical analysis (see Figure 1.1) and explain some of the most popular tools (certainly not all) used for this method of analyzing the financial markets.

The first principle states that *market actions discount everything*. This premise suggests that all publicly available information—such as company-specific news, political changes, weather, and so forth—is already priced into the current value of a security. Therefore we do not necessarily need to know why something is happening; we need only to understand the reaction of

FIGURE 1.1 Defining Technical Analysis Principles

investors to what is happening. If the reaction is positive, market participants will push markets higher. If the reaction is negative, market participants will push markets lower. We then employ a host of tools to decipher the impact of that action on the existing trend.

The second principle states that *prices move in trends*. This relates to Isaac Newton's first law of motion. It suggests that an object in motion remains in motion until acted upon by an equal or stronger force. This force, depending on its strength, can change the direction of motion from its prior path. In technical analysis, this can be thought of as an event or group of events being discounted into the price of a security, causing price to change direction.

The third principle is that *history repeats itself*—I can still hear my high school history teacher's voice as he quoted, "Those who do not learn history are doomed to repeat it." This principle suggests that as the dominant generation or the largest group of market participants transitions out of the financial markets, the incoming generation does not learn or receive enough of the previously accumulated information. Therefore we have an inherent bias to repeat many of the same investment and trading decisions, both correct and incorrect, as did previous generations. Some of this tendency to repeat history is represented by price patterns that form on the chart (i.e., a triangle or head and shoulders).

Now that we have a basis for what technical analysis is, we can discuss the tools that a technician uses. Figure 1.2 is a diagram presenting many of

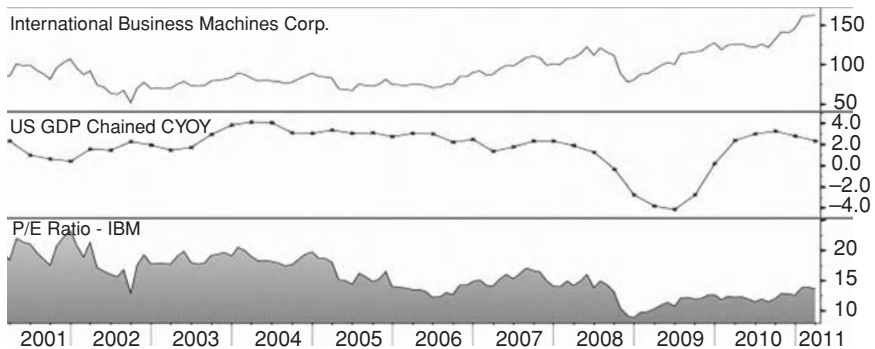
FIGURE 1.2 Methods/Theories Used in the Application of Technical Analysis

the theories and tools that a technician explores to perform an analysis of the financial markets, but it is certainly not inclusive of all the topics. The goal of this figure is to showcase the broad scope of the theories that encompass technical analysis. There are many books that go into detail about these and other topics. Please see the Recommended Reading section at the back of this book for more information.

The remainder of this chapter will address what the most popular chart types and technical studies are on the Bloomberg Professional Service. We will start with a description of the popular chart types and then break down their popularity. Then we discuss the popularity of technical indicators and break down their applications to the financial markets.

Defining Chart Types

Rarely does any market participant make an investment decision without observing the current trend. By simply looking at a line chart, a market participant can see upward, downward, or sideways movements. The work of

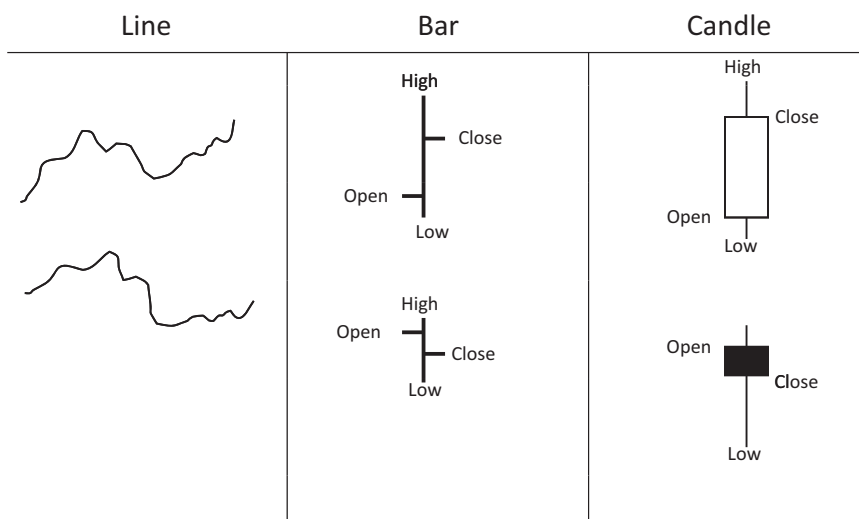
FIGURE 1.3 Line Chart Showing Stock Price, U.S. GDP, and P/E Ratio

a technician starts with price, and to look at price we use many different types of charts, such as those listed in Figure 1.2. Although this list is plentiful, it is far from being all-inclusive. Throughout this book, we will familiarize ourselves with the line, bar, candle, log, and intraday charts and identify their ranks in popularity among market participants. Later, we will do the same for the most-preferred technical indicators.

A *line chart* is a very elegant and simple type of chart to look at. It provides convenience for faster analysis because it shows the overall direction of trend. It is typically used by an economist analyzing economic data sets, a fundamental analyst scanning a list of securities for performance changes and fundamental trends, and overall very long-term analysis. For example, it could be a historical look at an economic release like gross domestic product (GDP), the price/earnings (P/E) ratio of a stock, or the closing price of a security. Figure 1.3 displays these data sets with added line-chart features that help in differentiating data sets from one another. The middle panel has markers on GDP emphasizing where the closing value was and the bottom panel has shading below the line (P/E ratio) to emphasize the slope of the line.

A *bar chart* is slightly more complex than a line chart in that it offers three more data points per occurrence, when such data exists. It shows the open, high, and low price in addition to the last or closing price.

A *candle chart* is similar to a bar chart in that it displays the same data—the open, high, low and closing prices—but it does so in a more descriptive and artistic fashion to allow for a quicker analysis and a clearer understanding of price movement. Figure 1.4 displays all three chart types. The candle chart differs the most because of the “body,” or the rectangular shape in the middle, representing the opening and closing price for a period of time. Typically,

FIGURE 1.4 Three Types of Charts: Line, Bar, and Candle

when this body is hollow, it represents an up period. When it is dark or filled in, it represents a down period.

Figure 1.5 is a historical representation comparing all three chart types and shows an example of how the clarity of a candle chart can offer an advantage in identifying more information faster than other chart types. Here we can quickly see that 13 of the 18 trading days in February were up-days (or hollow-bodied candles) and the other six were down-days (or dark-bodied candles).

A *logarithmic chart* is designed to represent the percent change between price increments on the y -axis. As the values on the y -axis get larger, the distance between them will shrink to a distance that is relative to the percentage change. For example, a security that goes from \$10 to \$20 has experienced a \$10 change or an increase of 100 percent. A security that goes from \$100 to \$110 has also experienced a \$10 change but only a 10 percent increase. Therefore the vertical distance on the y -axis should be greater for the 100 percent increase and smaller for the 10 percent increase. A good rule of thumb is to consider a log chart, in addition to an arithmetic chart, when the value has changed about 30 percent or more and always as an alternative for long-term analysis.

Figure 1.6 displays the price of the S&P 500 from the lows of March 2009 to March 2011, when price gained about 100 percent. The top panel

FIGURE 1.5 A Historical Comparison of a Line, Bar, and Candle Chart of the S&P 500 Index

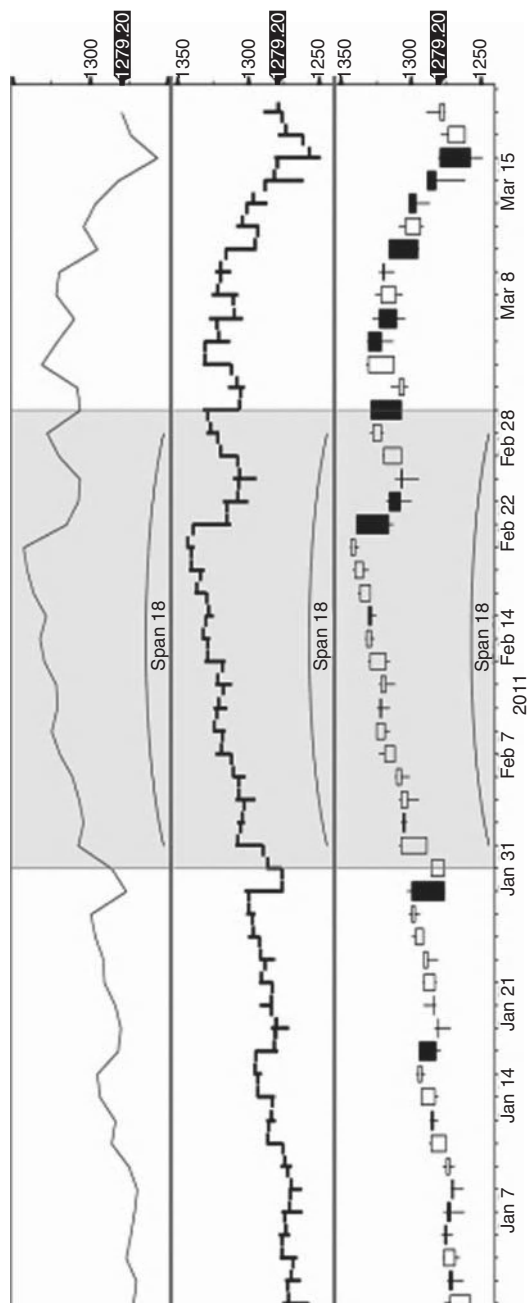
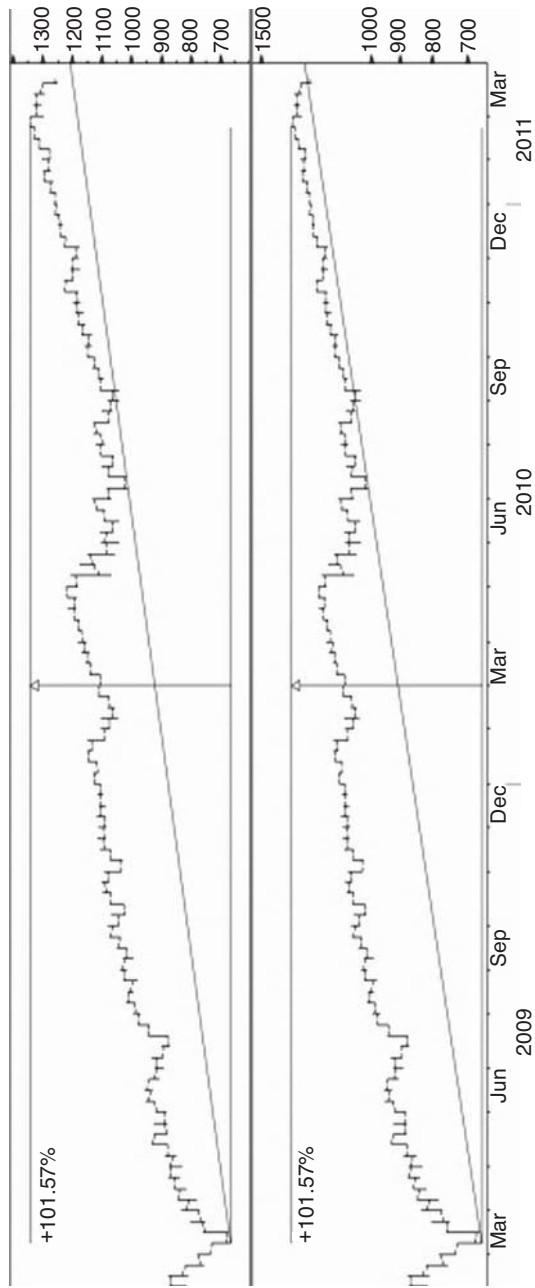


FIGURE 1.6 Trend Line Analysis Showing Arithmetic versus Log Scale Charts



is an arithmetic chart, showing equal price increments on the y -axis, and the bottom panel is a log chart, which adjusts the distance between increments on the y -axis to correspond with percentage change. In the top chart, price is about 50 points above the upward-sloping trend line. In the bottom chart, price is already starting to trade below the upward-sloping trend line. This difference in the display of market actions highlights why it is important to consider both chart types.

The last chart type to introduce is the *intraday chart*. This chart is used primarily by traders who have a short investment horizon or holding period, in order to track the current day or past few days of price movement. It provides a quick glimpse into what is happening right now for the value of a security and is designed to update in real time. An example of a 10-minute bar chart for the past three days is displayed in Figure 1.7. Each bar displays the open, high, low, and close for that 10-minute period of market activity.

Evidence of Chart Type Popularity

Now that we are familiar with the line, bar, candle, log, and intraday charts, we can discuss the preference of these chart types by market participants who analyze the financial markets through interaction with the Bloomberg Professional Service.

The measurable sample size of these regions is approximately 44 percent in the Americas, 38 percent in Europe, 12 percent in Asia, and 2 percent in the Middle East and South Africa (MESA). In other words, of a hypothetical 100 market participants, 44 were in the Americas, 38 in Europe, 12 in Asia, and 2 in MESA.

Figure 1.8 displays the average chart-type preference of market participants from 2005 to 2010. This reveals, on average, that the line chart is preferred about half the time, the bar chart about one quarter of the time, the candle chart about one fifth of the time, and that the log chart is rarely preferred.

Figure 1.9 displays the average preference for historical charts and intraday charts by market participants from 2005 to 2010. This reveals, on average, that the historical chart is chosen more than twice as often as the intraday chart, or about 69 percent of the time, while the intraday chart is preferred about 31 percent of the time.

Table 1.1 reveals the average preference for each year of the statistics shown in Figure 1.8 and 1.9. This data suggests that the preference for line charts is slowly growing, the preference for bar charts is gradually declining,

FIGURE 1.7 Three-Day, Ten-Minute Bar Chart

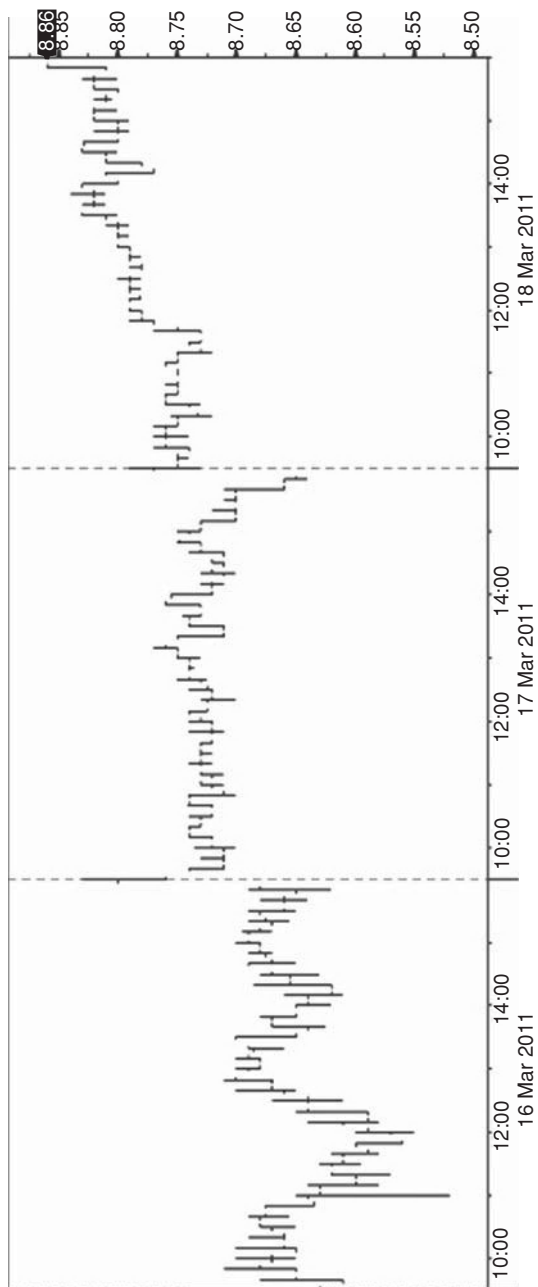
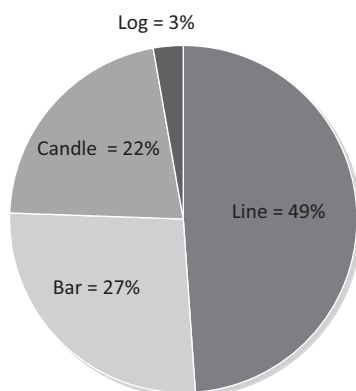
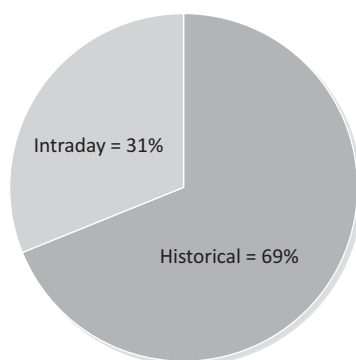


FIGURE 1.8 Average Chart Type Preference from 2005 to 2010**FIGURE 1.9** Average Historical and Intraday Chart Type Preferences**TABLE 1.1** Yearly Averages of Chart Types and Chart Periods

	2005	2006	2007	2008	2009	2010
Line	46%	47%	49%	52%	50%	50%
Bar	29%	29%	27%	26%	25%	25%
Candle	22%	22%	21%	20%	22%	22%
Log	2.9%	2.7%	2.5%	2.6%	3.6%	3.1%
Historical	74%	74%	71%	67%	65%	65%
Intraday	26%	26%	29%	33%	35%	35%

and the preference for candle charts is steady. It also shows that the preference for historical charts is declining and the preference for intraday charts is rising.

There are three large shifts in the data in this table. The first is in log chart preference from 2008 to 2009. The second is the historical chart preference from 2007 to 2009. The third is the intraday chart from 2007 to 2009. During this two-year period, from high to low, the S&P 500 declined about 56 percent. Therefore the rise in preference for log-scale charts makes sense because the markets experienced a large percentage move. The decline in historical chart preference and the rise in intraday chart preference could represent a few things. It could represent the urgent and repeated desire of market participants to see short-term impacts on the value of their holdings. It could represent investor indecision about what to do with their holdings. Or it could also represent the fear of further losses or hopes of a reversal. Overall it suggests that market participants choose intraday charts more frequently in bear markets than they do in bull markets.

Table 1.2 measures chart type preference of market participants with respect to a region. It answers the question, “What chart type does a region prefer?” Based on the average user preference in 2010, we can conclude:

- The Americas, Europe, and MESA prefer a line chart about half the time.
- After the line chart, the Americas prefer bar charts considerably more than candle charts, while Europe has equal preference for bar and candle charts.
- Asia is the only region that does not prefer the line chart more than the candle chart. Asia prefers the candle chart the most, and prefers it considerably more than the other regions.
- MESA, like Europe, prefers first the line chart and then the candle chart.
- Log chart preference is higher in Europe and the Americas than in Asia and MESA.

TABLE 1.2 Chart Type Preference of Each Region

	Americas	Europe	Asia	MESA
Line Chart	51%	55%	41%	48%
Bar Chart	32%	20%	14%	20%
Candle Chart	14%	21%	43%	31%
Log Chart	3%	4%	1%	1%
Total	100%	100%	100%	100%

TABLE 1.3 Comparison of Regional Chart Type Preference to World Preference

	Americas (44%)	Europe (38%)	Asia (12%)	MESA (2%)	Total
Line Chart	43%	40%	15%	1.5%	100%
Bar Chart	58%	30%	11%	1.3%	100%
Candle Chart	27%	34%	37%	2.2%	100%
Log Chart	44%	47%	8.7%	0.6%	100%

Table 1.3 allows us to understand the figures in Table 1.2 in more detail by comparing chart type preference of a region to chart type preference of the world. In other words, the Americas, or 44 percent of the sample size, prefer the line chart 43 percent of the time, or they about equally prefer the use of the line chart. The conclusions we can draw from this table that weren't clear in Table 1.2 are:

- Although Asia used line charts the least of all the regions in Table 1.2, its preference for line charts in Table 1.3 is 25 percent greater than its sample size. Asia's preferences for a bar or line chart is about equal.
- Although MESA preferred the line chart most of all charts in Table 1.2, its candle chart preference in Table 1.3 is greater than its sample size, and the line chart preference is less. Candle chart preference is well represented by MESA.
- The log chart is greatly preferred in Europe and equally preferred in the Americas, while Asia and MESA do not prefer it.

Evidence of Technical Indicator Popularity

Regardless of the chart type that you prefer, chartists and technicians take price and apply an abundance of calculations to it in order to gain a better understanding of what price or market actions are telling them. A question I frequently hear from those who are starting to use technical analysis is "What indicators (calculations) should I use?" In my opinion, there is no "right" technical indicator. The selection and application of one or a handful of studies is based on a person's investment style, trading strategy, risk tolerance, goals, and available time commitment to learn the ins and outs of those indicators independently and together. We could back-test these indicators

and strategies, but perhaps that will be in another book. Overall indicator preference can be defined with the data we discuss in the next few pages.

The first step to learning about them is to read some reliable information that provides an introduction into the many indicators that exist. While reading about them, you could select half a dozen studies and dig deeper into their calculations and tendencies. A strong recommendation would be to choose a set of indicators that have different objectives, such as a smoothing study like MACD, a momentum study like RSI, and a distribution study like Bollinger Bands. The next step would be to start applying them individually to a chart to see how they react to price movements, and finally applying them together.

For reference, the following studies and abbreviations will be used when discussing the indicators. Simple Moving Average (SMA), Exponential Moving Average (EMA), Relative Strength Index (RSI), Moving Average Convergence Divergence (MACD), Bollinger Bands (BOLL), Stochastics (STO), Ichimoku (GOC), Directional Movement Index (DMI), Average Directional Movement (ADX), Volume at Time (VAT).

The graph in Figure 1.10 displays the most-preferred indicators, which are a convenient group of studies to be familiar with. The legend lists them in the order of most to least preferred. Please note that the simple moving average (SMA) is most certainly a highly preferred indicator, but it has been excluded because its application is not only for technical use.

Table 1.4 compares the preference of an indicator to the total preference of all indicators of that region. The world column presents the same data as in Figure 1.10 and is listed for ease in comparison. This table answers questions such as “In what order does a region prefer these popular indicators?” It shows that the world as a whole prefers RSI the most, or about twice as much as

FIGURE 1.10 Most Preferred Indicators

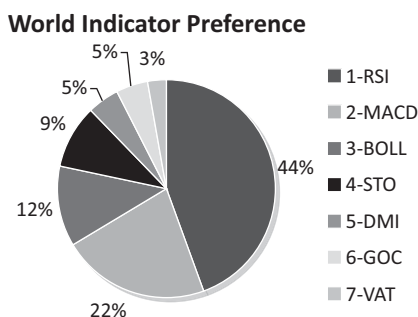


TABLE 1.4 Comparing Regional Indicator Preferences to All Indicator Preferences

	Americas	Europe	Asia	MESA	World
RSI	46.1%	45.1%	39.4%	50.1%	44.4%
MACD	20.0%	23.2%	23.2%	20.6%	22.0%
BOLL	11.7%	12.8%	11.4%	9.9%	12.0%
STO	10.3%	9.3%	8.0%	8.7%	9.3%
DMI	4.2%	5.0%	5.6%	6.1%	4.9%
GOC	2.5%	2.8%	10.8%	2.6%	4.5%
VAT	5.3%	1.8%	1.6%	2.0%	2.9%
Total	100%	100%	100%	100%	100%

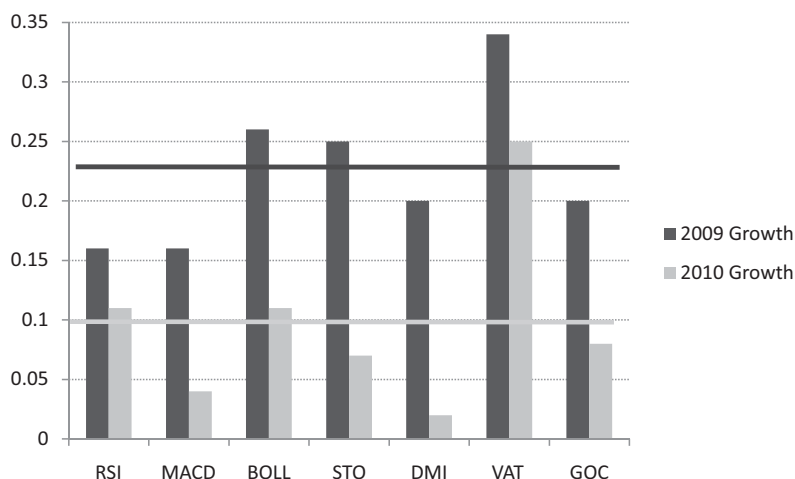
it prefers MACD. The Americas favor volume at time (VAT) over DMI and Ichimoku. It also shows that Asia prefers GOC over DMI and STO.

Table 1.5 displays how much a specific indicator is preferred in a particular region relative to the indicators' total preference worldwide. Although Table 1.4 showed RSI as the most-used indicator, it is less preferred by the 44 percent of the sample size in the Americas, about equally preferred by the 38 percent in Europe, is preferred more by the 12 percent in Asia, and much more by the 2 percent in MESA.

Some bigger-picture conclusions we can draw from this table are as follows. First, the preference for almost all technical indicators in MESA is

TABLE 1.5 Regional Indicator Preferences Compared to Total Indicator Preference

	Americas (44%)	Europe (38%)	Asia (12%)	MESA (2%)	Total
RSI	33.9%	40.5%	20.2%	5.3%	100.0%
MACD	29.6%	42.0%	23.9%	4.4%	100.0%
BOLL	31.8%	42.6%	21.7%	3.9%	100.0%
STO	35.9%	40.0%	19.6%	4.4%	100.0%
DMI	27.9%	40.4%	25.9%	5.8%	100.0%
GOC	18.2%	24.6%	54.4%	2.7%	100.0%
VAT	59.0%	25.3%	12.4%	3.3%	100.0%

FIGURE 1.11 Growth Rates of Popular Technical Indicators Adjusted for User Growth

more than double its sample size. This shows a strong overall preference for technical indicators in this region. Asia's preference for technical indicators substantially outperforms its sample size, but not as much as MESA. Europe's preference for the top five technical indicators is slightly more than its sample size. The Americas substantially underperform in all categories except VAT.

Figure 1.11 displays the overall growth in indicator use in 2009 and 2010 and is normalized for changes to sample size. This answers a question such as "What indicators are market participants preferring more often?" The average growth of technical indicators over these two years is quite substantial. Their preference on average grew 23 percent in 2009 and another 10 percent in 2010. Interestingly, the most-preferred study, RSI, had double-digit growth rates for both years. Of all the studies, preference for RSI, VAT, and BOLL grew more than average during both years.

Table 1.6 is displaying the preference of the other six studies in terms of RSI. We already know the order of the most-preferred studies but this table addresses a question like "What indicator does a region prefer in addition to RSI?" For example, Asia prefers MACD 59 percent of the time that RSI is preferred, which didn't stand out nearly as much in the other tables. Europe prefers MACD about half of the time, and the Americas and MESA prefer it about two fifths of the time. MESA's lack of preference in STO is emphasized here. Further confirmation for the Americas' preference for VAT and Asia's preference for GOC is also provided.

TABLE 1.6 Indicator Use in Terms of RSI

	Americas	Europe	Asia	MESA	World
RSI	100%	100%	100%	100%	100%
MACD	43.4%	51.4%	58.7%	41.0%	49.6%
BOLL	25.3%	28.4%	29.0%	19.7%	27.0%
STO	22.3%	20.7%	20.4%	17.4%	21.0%
DMI	9.2%	11.1%	14.2%	12.1%	11.1%
GOC	5.5%	6.2%	27.3%	5.2%	10.1%
VAT	11.4%	4.1%	4.0%	4.1%	6.6%

In conclusion, of these findings, the following are some of the general preferences of the market participants utilizing the Bloomberg Professional Service.

- Asia strongly prefers candle charts, then line charts.
- MESA has a relatively strong preference for candle charts, although not as strong as Asia's, and then it prefers line charts.
- The Americas prefer line and bar charts, but overall have less preference for other charts and indicators.
- Asia prefers GOC and tends to complement it with MACD.
- Europe uses all chart types and indicators and has the largest representation of chart preference. It also has the most preference for log scale charts.
- The Americas prefer VAT.
- MESA's preference for indicators is very high when compared to its sample size.

Growth in technical indicator preference is strong and in fact was one of the driving factors in producing this book to discuss newer and more advanced technical indicators.

The rest of this chapter reviews the generally accepted methods for using these technical indicators.

Applying the Most Popular Technical Indicators

I have used the technical indicators discussed here for many years and through study and experience I feel I have come to understand their movements very

well. This is something I highly recommend to all readers, as it will increase your confidence in using them as part of an investment decision-making process. Having spent a significant amount of time discussing indicators with market participants, I've come up with succinct yet informative descriptions to explain their workings. Once you've read about the indicators, refer to the box presented further on in the chapter, titled "Generally Accepted Rules for Popular Indicators."

Relative Strength Index

The *relative strength index* is usually referred to as a momentum indicator or oscillator. It is called "relative" because the calculation compares the average size of the up-days to the average size of the down-days over a specified timeframe. For example, if we analyze the price change of a security for each of the past 14 days and notice that price went up \$1.00 ten times and down \$0.25 four times, we can quickly and easily say that price went up \$10 and down \$1, or that on average it went up more than down. In reality, we cannot quickly and easily see this on a chart, nor can we compare it historically. This is the relationship that the RSI is extracting from market actions on a rolling basis, but is not the exact calculation.

The indicator is scaled onto an axis that has a low of 0 and a high of 100. Usually by default, horizontal lines are drawn at 70 and 30 to signify momentum in the upward and downward direction, or what is commonly referred to as *overbought* and *oversold* respectively. It is also important to point out that an RSI level of 50 signifies equal performance of up-periods versus down-periods. The most common look-back period for RSI is 14. Some prefer 9 or 21, and I've seen some go as low as 3 and 5.

RSI is traditionally interpreted as "Sell when overbought and buy when oversold." This interpretation can be meaningful primarily in range-bound markets with areas of predefined support and resistance. It is important for RSI to confirm the direction of price. If price and RSI fail to confirm each other near support or resistance or during breaks of these levels, a change in trend may be near. We can define confirmation as new highs or new lows in both instruments at approximately the same time.

If RSI travels above 70 while price fails to break resistance, you may choose to be bearish in anticipation of a pullback because high levels of momentum did not lead to price breaking resistance. Alternatively, if price pierces resistance but RSI does not reach overbought, momentum is not behind the new highs so you may choose to be bearish.

The opposite would be true for a bullish view. When RSI travels below 30 and price is holding above support, you might choose to be bullish because large downside momentum did not force a break of support. Alternatively, when RSI is above 30 and price pierces support you may choose to be bullish because momentum to the downside is not strong and the break of support may only be temporary.

Volume analysis is very complementary to these methods of using RSI. If volume is light near resistance or support, it suggests market participants have finished pushing price in that direction. There will be more discussion of volume later.

RSI in a trending market is viewed differently. When a market is trending, all we want to know is if it's going to continue or reverse. If the overall trend is down and RSI reaches an overbought reading, the trend may be changing to an upward direction. The start of a trend change usually appears like sideways movement. Therefore the rally that occurred in the downtrend to cause the overbought reading is likely to at least partially correct itself because the market isn't fully confident in a change in trend yet. A trend change can be confirmed if RSI stays above oversold in the correction and when price starts to break resistance or set higher highs.

RSI analysis can be more complex than what was just discussed. Another way to interpret RSI is to identify periods of divergence. Divergence acts as a warning sign that the trend may be changing. Bearish divergence (an opportunity to sell) occurs when price is making higher highs and RSI is making lower highs. Bullish divergence (an opportunity to buy) is the opposite, when price is making lower lows and RSI is making higher lows. The reason bearish divergence is a warning sign of a change in trend is because price is getting more expensive, but it is doing so at a slower rate. Market participants are still pushing price higher but not as fast as they were when price was cheaper.

Finally, it is fairly common for RSI to be biased to the larger trend for that security and the overall market. During uptrends, the RSI level tends to become more overbought and less oversold. During downtrends, the RSI line tends to become more oversold and less overbought. Therefore, in uptrends you could anticipate the overbought level to be more like 75–80 and oversold levels to be 35–40. In downtrends you could anticipate overbought levels of 55–60 and oversold levels of 20–25. These levels are a rule of thumb. What is important is that when you use RSI, you start seeing the transition of RSI levels in a downtrend to RSI levels in a range to RSI levels in an uptrend. The violation of these levels is alerting and confirming to a change in the behavior of trend. Let's take a look at an example of both divergence and overbought/oversold bias.

In Figure 1.12 there are seven zones to discuss where price and RSI movements depict trend direction. In zone 1, price is in a downtrend and is being coffered lower by a downward-sloping resistance line. Price set four lower lows while RSI made three higher lows and did not get oversold on the fourth low (and was only .37 below the third low). This tells us price is reaching the lowest levels in a long time but at a slower and slower rate. Bullish divergence had presented itself and warned of a potential bottom.

In zone 2, price breaks above the downward sloping resistance line but RSI fails at 60, the overbought level for a downtrend. In zone 3, price stays above the lows of zone 1 and RSI reaches 34, which is closer to oversold in an uptrend than a downtrend. June, July, and August is starting to look more and more like a range-bound market, or a double bottom, than a downtrend, as RSI stays above 30 and below 70.

In zone 4, price breaks the range-bound highs and RSI breaks above 60 and then through 70, confirming the uptrend. All RSI lows between zone 4, 5, and 6 are above the oversold level of 40; in fact they are at least 45, or showing very bullish momentum. In zone 6, price has a huge thrust to the upside with RSI exceeding 80. Price continued to higher highs after that, but RSI did not reach overbought, showing lack of momentum into higher prices. Price and momentum were diverging, bearishly, warning that price may be forming a top.

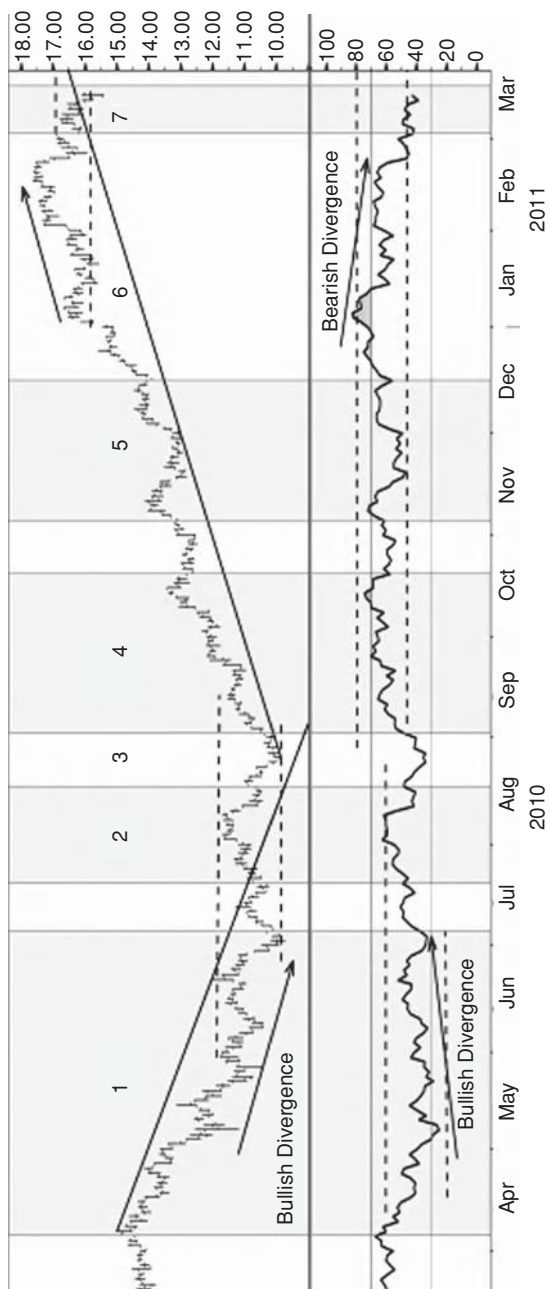
In zone 7, RSI crossed below 45 for the first time in a long time while price broke down through multiple support levels. We can look for one of two situations to occur that will specify a change in trend from up to sideways. The first is if price continues to decline and RSI reaches 30–35. The second would be if price moves higher and fails to exceed the prior highs of 17–17.50, all while RSI does not exceed 60 (the overbought level for a downtrend).

Moving Average Convergence/Divergence

Also known as MACD, *moving average convergence/divergence*, this indicator falls in the trending category of studies mostly because it is based on moving averages. By design, trending studies will experience some lag in their signals, so they are best when used to confirm signals from other indicators. Something that is noteworthy about MACD and perhaps contributes to its popularity is that it weights the most recent data points more, or exponentially calculates to reduce its lag.

The default settings for this study across all systems are largely the same. The MACD1 line is the spread between the 12- and 26-period exponential

FIGURE 1.12 Alcoa, Inc., with Examples of Bullish and Bearish RSI Divergence and Multiple Overbought and Oversold Levels



moving average. The signal line is the 9-period exponential moving average of the MACD1 line. I find that very few people actually change these periods. Hopefully this explanation will encourage you to experiment. In Chapter 2, by Julius de Kempenaer, you'll see that he prefers the spread between the 10- and 30-week moving averages. Interestingly enough, almost everyone seems to keep the signal at a period of 9.

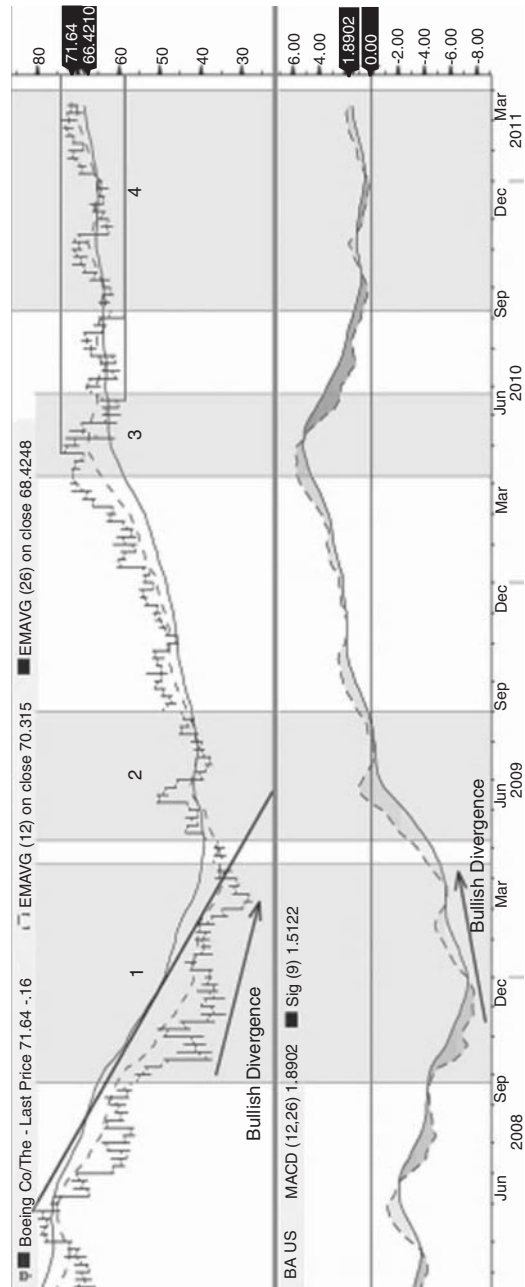
This produces an indicator that will oscillate between a positive and negative value. A rule of thumb for many indicators is that when the value of a line in an indicator turns positive, it is bullish, and when it turns negative, it is bearish. A second rule of thumb to consider is that when a faster-moving line (in this case the MACD1 line) crosses above a slower-moving line (signal), a buy signal has occurred, and when a faster-moving line crosses below a slower-moving line, a sell signal has occurred. Remember, these are rules of thumb, not guarantees.

In Figure 1.13 there are two exponential moving averages on the price chart. The dashed line is a 12-day average and the solid line is a 26-day average. Below that is the MACD indicator where the MACD1 line is dashed and the signal line is solid. According to the legends, the EMAVG (12) is 70.315 and the EMAVG (26) is 68.4248. The 12-day average minus the 26-day average equals 1.8902, which is equal to the MACD1 line in the bottom panel. If the shorter-term average is less than the longer-term average, the MACD1 line value will be negative. If the shorter-term average is greater than the longer-term average, the MACD1 line value will be positive. Therefore, the MACD1 line is visualizing the crossing of the exponential moving averages on the price chart.

The other component of the MACD indicator is the signal line. This line is plotted to trail or smooth the MACD1 line for two reasons. First, it allows the indicator to generate earlier signals of a potential change in trend. It provides earlier sell signals when the MACD1 line crosses below the signal line and earlier buy signals when the MACD1 line crosses above the signal line. Considering where these crosses occur is important. The MACD1 line crossing below the signal line while positive is an early sell signal. If the MACD1 line crosses above the signal line while positive and far from the zero line, a buy signal has not occurred because the trend is already very bullish. Second, the signal line confirms a trend change when it turns into a positive or negative value after the MACD1 line turns.

Last, the slope of the MACD1 and signal line—positive, negative, or transitioning—can have a bearing on the overall direction of trend. In situations shown in zone 2 of Figure 1.13, you'll see how this can become important.

FIGURE 1.13 Moving Average Convergence/Divergence Example: Boeing Company



In Figure 1.13, four zones have been highlighted to provide an example of how the indicator works. In zone 1, price is in a downtrend as defined by the resistance of the downward-sloping trend line and the 12-day exponential moving average. As price reaches lower lows in March 2009, MACD makes higher lows. This can be considered bullish divergence, as we discussed in the RSI example. I find that fewer people consider divergence on MACD, but I have come across some who do. In this instance, the divergence between MACD and price means the rolling spread between the two moving averages of price has become smaller despite price going lower. In other words, the moving averages are closer to a bullish cross than at the last low in price, and now price is even lower.

In the transition from zone 1 into zone 2, price broke above the trend line and both moving averages. In the center of zone 2, the MACD1 line turned positive. If you were using just the moving averages on price, you may have been concerned because price dipped below them and then they bearishly crossed. Deeper interpretation of the MACD can help in situations like this. The MACD1 line did not cross the signal line and it hovered at, and to just below, the zero line. Most important, it stayed above the signal line and the signal line maintained a bullish direction, or a positive slope. At the end of zone 2, the signal line turned positive.

In zone 3, price had its first bearish signal in the uptrend, which is represented by the MACD1 line crossing below the signal line. From zone 3 to the end of the chart a range-bound market formed where defined support and resistance is present, at about \$58 and \$74 respectively.

In zone 4, the moving averages on price turned flat or sideways and the MACD1 and signal line took a dive, coming very close to the baseline (or zero). At this point we can still consider the trend as up. For it to continue, we will need to see price close above prior highs of \$74.22, and the MACD lines to be pointing higher (positive slope). If price breaks below \$58.78, the MACD lines will likely have turned negative already and a downtrend will be present.

Bollinger Bands

In basic theory, the Bollinger Bands study attempts to point out overbought or oversold markets. It does so by calculating a moving average of price and measuring two standard deviations above and below it. The traditional application will measure two standard deviations above and below a 20-period moving average. Therefore, in general terms, price should be inside of these bands about 95 percent of the time.

The generally accepted signals are to sell if price closes above the upper band (+2sd) and buy if price closes below the lower band (-2sd). In doing so, a market participant expects price to revert to the mean, which is where he or she would exit the trade.

Because of the chosen method of calculating this study, the distance between the bands will vary. Narrower bands signify a low-volatility market, or a smaller average dispersion of data points. Wider bands signify a more volatile market, or a larger average dispersion of data points. Knowing which scenario to trade and how to do it is important.

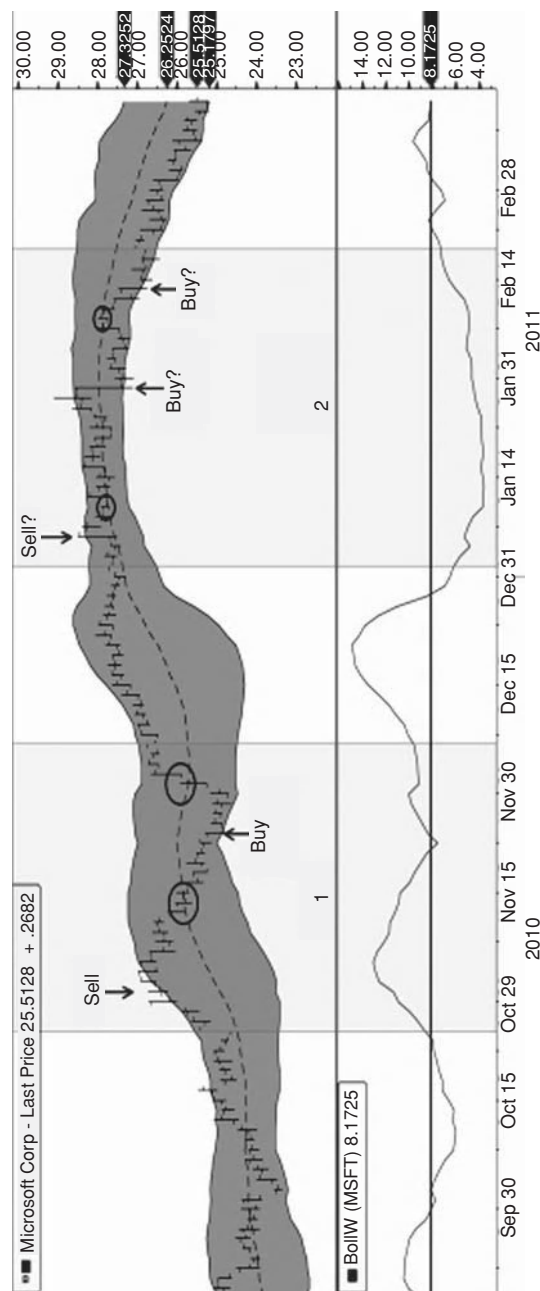
From my experiences, wider bands offer better opportunities than narrow bands for a mean reversion trade. Narrow bands are more useful for determining the future direction of trend. In Figure 1.14, there are two shaded zones, zone 1 and zone 2. There is also a derivative of the Bollinger Band in the lower panel called *bandwidth*. The bandwidth is a measure of how far apart the upper and lower deviation bands have been. The horizontal line drawn on the bandwidth is an average of the bandwidth over that timeframe. This tells us if the security is experiencing high or low volatility on a relative basis. A regression line or average line with standard deviations could be applied as well.

Zone 1 is an ideal situation for a mean reversion trade. The arrow points to a bar and is labeled “Sell” where price closed above the upper band. Notice the bar before it opened above it but did not close above it. The level of the close is most important in this scenario, and in many other indicators. The day after the sell bar, price actually crept slightly higher, but then reverted to the mean, providing a gain of \$0.67. This was an ideal situation to sell because the bandwidth was well above the average and price traded above the upper band the day.

There is also a “Buy” signal in zone 1. This signal wasn’t as ideal as the sell signal because the bands were at average distance. You may notice when the bandwidth is average to wide, price tends to *ride the band* for just a couple of periods. So the first break or test of the band is likely followed by another. If you were going to buy at that point on the chart, you waited through four periods of sideways movement for price to revert higher. If you were long, it was encouraging to see that price never closed below the close of the buy bar. Then price reverted to the mean for a gain of \$0.91.

Zone 2 is an application I see or hear less of than the one shown in zone 1. The concept of low volatility suggests a pause in the prior direction of trend. Essentially, investors are done chasing price higher or lower and price begins moving sideways. Price doesn’t move sideways forever. Therefore the identification of narrow bands over a period of time combined with a

FIGURE 1.14 Bollinger Bands: Microsoft Corporation



breakthrough of those bands suggests a new direction of trend, not a mean reversion trade. That trade will likely come again a little later after volatility, or a greater-than-average bandwidth, returns.

In zone 2, there is an arrow pointing to a bar marked “Sell?” At that point in time, the bandwidth was very narrow. Since price was in an uptrend and volatility declined, suggesting a pause or potential reversal in trend, it is not advisable to sell because the profit opportunity is much less than the zone 1 examples because the moving average is closer to the deviation bands. The next arrow in zone 2 says “Buy?” The same logic can be applied here. The bands are narrow, there is low volatility to profit from, and we’re uncertain if price is forming a topping or continuation pattern.

Toward the end of zone 2 is a second “Buy?” point. Once you see price setting lower lows and the bandwidth rising above average, a new trend is likely beginning, in this instance to the downside. In this scenario you could attempt to sell the riding of the lower band to profit from the continually expanding volatility. The “riding of the bands” mentioned earlier tends to occur for longer timeframes when bands go from narrow to expanding. You could also wait for a few volatile bars where price gaps below the two-standard-deviation band while bandwidth expands and consider a mean reversion trade like zone 1.

Stochastics

Stochastics (STO) is a momentum study similar to RSI. It oscillates between 0 and 100 and has overbought and oversold levels that are typically set at 80 and 20. The indicator has one line that calculates the actual stochastic and then three additional lines that smooth the stochastic repeatedly. These lines are called %K, %D, %DS, and %DSS respectively. For some undisclosed reason, the calculations of this study on multiple charting applications differ from one another. According to the Bloomberg Professional Service, the %D and %DS, or the once- and double-smoothed stochastic, tend to be the go-to series of the indicator, so we will focus our discussion on these.

The goal of the study is to tell a market participant if price is closing closer to the highs or lows over time. As you can imagine, in an uptrend we would expect price to be closing closer to the highs, and in a downtrend closer to the lows. Therefore, the turning down of the stochastic while overbought and crossing back into the neutral zone (below 80) is a bearish signal. The turning up of the stochastic while oversold and crossing back into the neutral zone (above 20) is a bullish signal. Divergence, as discussed with RSI and MACD,

can most certainly be applied to the stochastic indicator and is something Cynthia Kase delves into further in Chapter 4.

Figure 1.15 displays the previously discussed signals. Zone 1 is a classic signal of *bearish divergence*. The %D and %DS lines stayed overbought for quite some time and finally began diverging from rising price. When the %D and %DS lines both exited overbought territory, or crossed below 80, is also when the bearish divergence was confirmed.

Zone 2 just barely had a buy signal from the stochastic lines as the %D reached 17 and the %DS reached 20. It is ideal to question signals like this until a clearer, more opportunistic situation appears, like the *bullish divergence* that occurred right after it.

Zone 3 had a few signals going on. Price broke above a downward-sloping trend line and the highs of the prior consolidation. You may have noticed that this is a candle chart, which allows us to apply *candle pattern theory*, an important part of interpreting market actions. During the three trading days after the break above the prior consolidation highs, three doji candles appeared. (A doji candle represents market participant indecision and balance between supply and demand. The buyers balance out the sellers and vice versa. It signals a pause in the prior trend.)

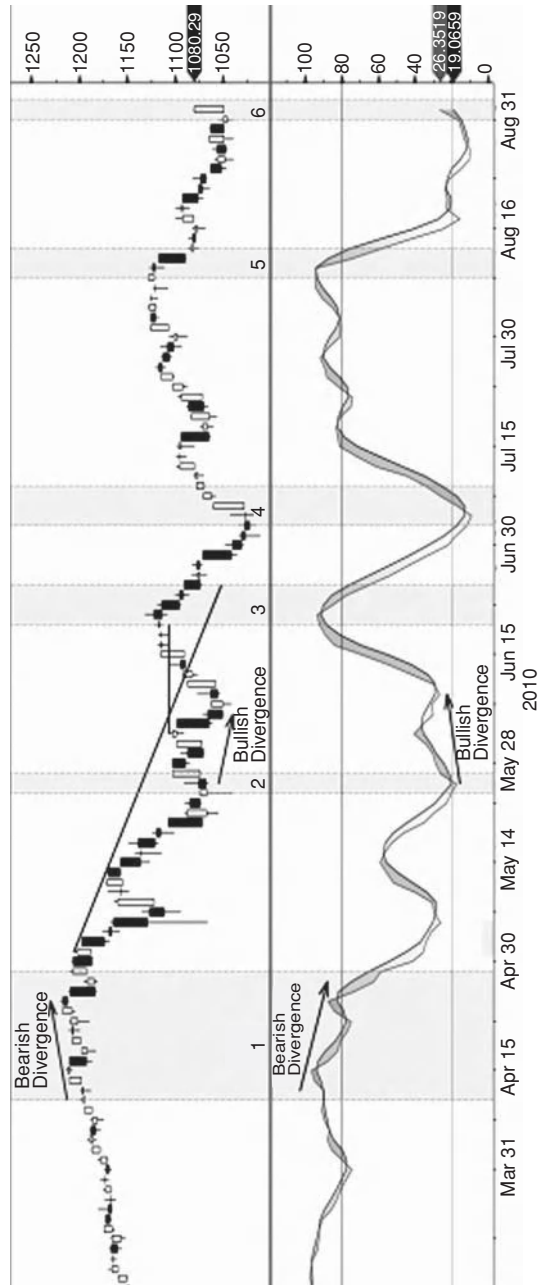
The first candle in zone 3 gapped higher at the open and closed lower on the day, engulfing the prior doji candle, or forming a *bearish engulfing pattern*. This pattern is a trend-reversal signal because the current day's trading activity completely reversed throughout the course of the day and turned yesterday's indecision to bearish by closing lower. Therefore, the bullish trend line break and the highs above the prior consolidation highs were being reconsidered. The second candle in zone 3 caused a bearish cross of the stochastic lines and shortly thereafter they crossed below 80, providing a sell signal. If candle pattern analysis is of interest to you, I would strongly suggest you review the recommended readings at the end of this chapter.

In zone 4, price formed a long-legged doji and then reversed to the upside. In zone 5, we received a sell signal from a possible position taken from zone 4. Zone 6 is another example of a standard buy signal.

Directional Movement Indicator

The *directional movement indicator* (DMI) falls into the category of a trending study. The calculation is somewhat in-depth, so I've come to explain it as follows. In an uptrend, we should expect price to make higher highs and higher lows. In a downtrend, we should expect price to make lower lows and lower highs. The mapping of this relationship over time is more or less the

FIGURE 1.15 Stochastics on the S&P 500



goal of the +DMI and –DMI lines, which represent up movement and down movement, respectively. In theory, if the +DMI is greater than the –DMI, it is bullish. If the –DMI is greater than the +DMI, it is bearish. We can't jump to these conclusions, however, until we consider the *average directional movement* (ADX).

Derived from the +DMI and –DMI lines, the ADX line suggests that the market is trending in the direction of the greater DMI line if it is above 25. If it is below 25, it suggests that the trend is weak or range bound. If the ADX comes from 15 to 23, a trend could be developing. If the ADX goes from 32 to 25, the trend may be coming to an end.

Figure 1.16 displays the DMI and ADX indicator together. The solid line is the +DMI, the dashed line is the –DMI line, and the thick dotted line is the ADX. Prior to zone 1 there is a range-bound market as price was not making consistently higher highs or lower lows and the ADX line was below 25.

In zone 1, price declined below the range-bound lows and a downward-sloping trend line began. The –DMI continued to rise while the +DMI continued to fall. Then at the end of zone 1, the ADX confirmed a downtrend in progress when it rose from 16 to above 25.

In zone 2, price tested the downward-sloping resistance line and failed. At the same time, the ADX line went below 25, suggesting that the prior downtrend was ending (this does not necessarily mean reversing).

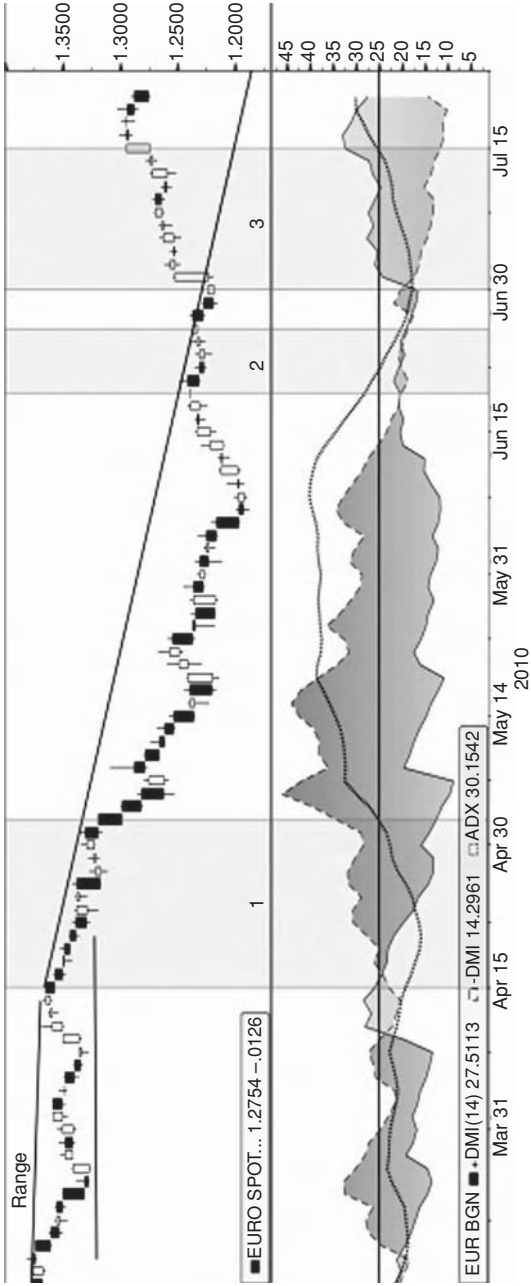
In zone 3, price broke above the trend line and the +DMI began rising while the –DMI line was falling. Shortly thereafter, the ADX line crossed above 25, confirming the trend had turned to up.

Ichimoku

The sixth-most-preferred technical study, and the one that is most often used in Asia, is *ichimoku*. This study can be classified as a trending study because its calculations are primarily averages. It is comprised of three parts. The first part is the *conversion line* and *base line*. The second part is the *cloud*, which is made up of two lines named *leading span 1* and *leading span 2*. The third part is the *lagging line*. Note also that candle pattern analysis is essential in ichimoku charting.

The first four lines mentioned are averages of price, but not moving averages. The conversion line is typically the midpoint of the highest high and lowest low over the past nine periods. The baseline is typically the midpoint of the highest high and lowest low over the past 26 periods. The calculation

FIGURE 1.16 Directional Movement Indicator Applied to the Euro



will roll in the same way that a moving average does but will only consider those defined points.

Leading span 1 is the midpoint of the base line and the conversion line plotted 26 periods forward on the chart. Leading span 2 takes the midpoint of the highest high and lowest low of twice the period of leading span 1 and plots it 26 periods forward. These two lines form the cloud on the chart.

The cloud is an integral part of the indicator. The direction of the cloud into the future suggests the overall direction of trend. When it is thick and sloping down, it indicates a bearish trend. When it is thick and sloping up, it indicates a bullish trend. The thickness of the cloud suggests the amount of support or resistance present when price is trying to break through it. When it is thin, price stands a better chance of breaking through it. The inversion of the cloud is important to confirming a change in direction of the prior trend. When leading span 1 crosses above leading span 2, it is bullish, and when it crosses below, it is bearish.

The intersection of the conversion line and base line is important for trend change signals. A bullish signal occurs when the conversion line crosses above the base line. A bearish signal occurs when the conversion line crosses below the base line. These lines are subject to support and resistance of the cloud. A good confirmation of a change in trend is when these lines follow price through the cloud.

Last to examine is the lagging line. This line is the current price plotted 26 periods prior. It allows us to quickly and easily see if today's price is greater than or less than it was 26 periods ago. If the lagging line is above price, it means price today is greater than price then, so it is bullish. If the lagging line is below price, it means price today is less than price then, so it is bearish. The candle pattern formations of today versus the patterns where the lagging line falls can be taken into consideration. The lagging line is also subject to support and resistance at the cloud.

Figure 1.17 displays a five-year period during which the Japanese yen was strengthening against the U.S. dollar and shows the power of the resistance from the cloud at points 3, 4, 5, and, in theory, 6. Point 1 presents multiple indications that signaled the start of this trend. I've annotated where 26 bars prior to and after the point exist so that we can orient ourselves with the information we were seeing during that time. Remember, the cloud is pushed forward 26 periods and the lagging line is pushed back 26 periods. Let's look at Figure 1.18, which gives a more detailed image of the trend change that occurred in 2007.

At point A, price made a strong move lower, breaking below the conversion and baselines, and found support at the top of the cloud. At this point,

FIGURE 1.17 Ichimoku Indicator on the Japanese Yen

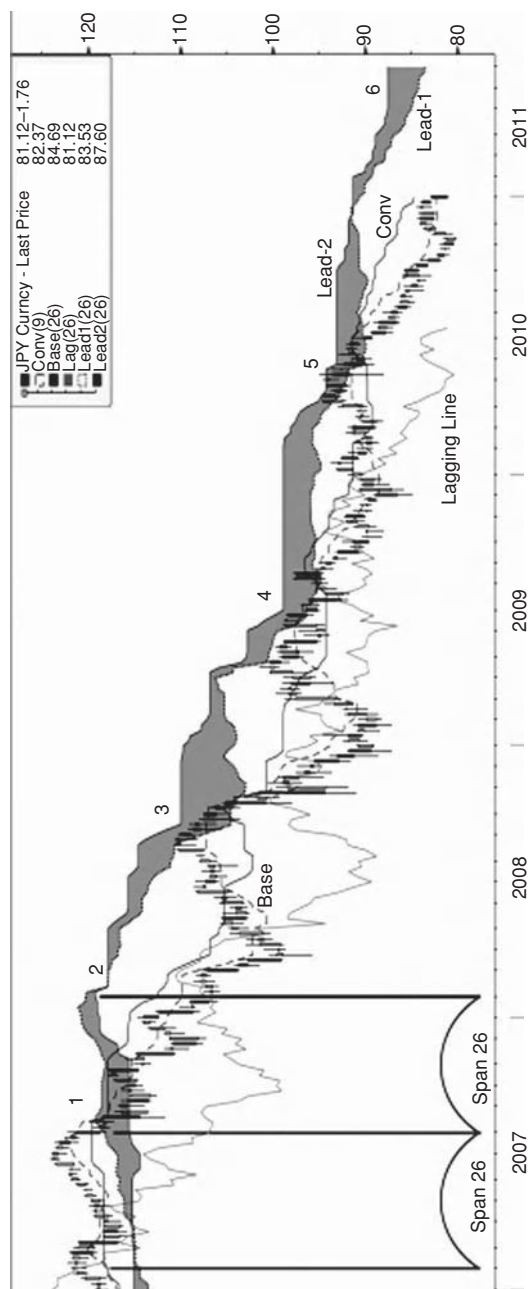
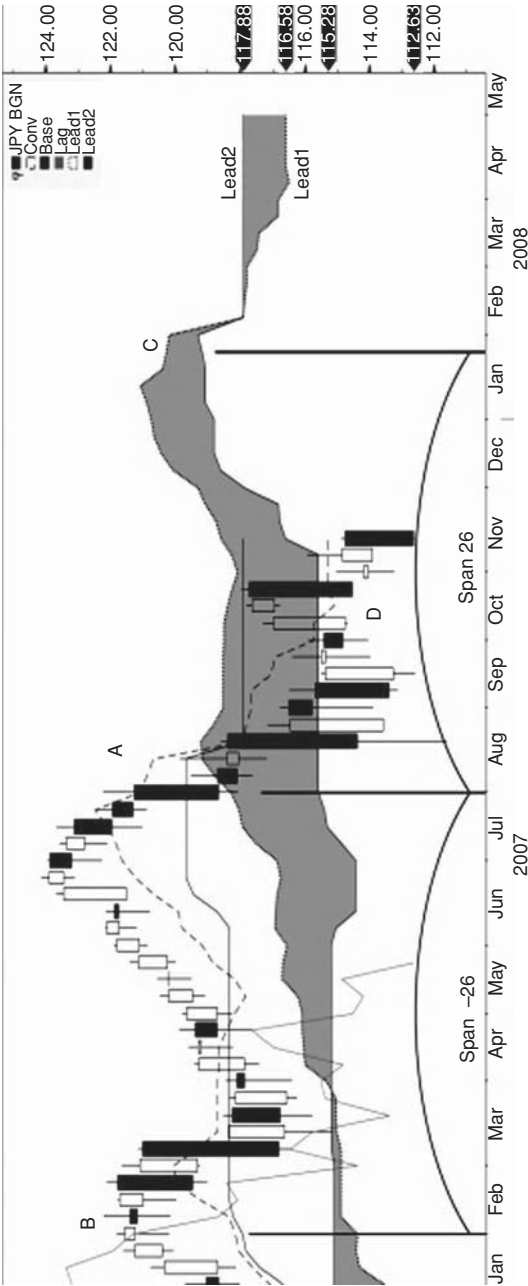


FIGURE 1.18 The Strengthening Yen and the Weakening US\$ Lead to a Trend Change of the Popular Cross in 2007



we can look forward and backward on the chart to see what the leading and lagging lines are doing. At point B, the lagging line crossed below price, indicating that current price was less than it was 26 periods prior. Some would consider the two candles at point B, a hanging man and a long-legged doji, as additional bearish signs because price stalled at these higher lagged levels. At point C, the leading spans (cloud) were narrowing and very close to a bearish cross. These components were not encouraging signs for the currently wide or supportive cloud at point A.

A couple of periods to the right of point A, price made a fast move down, breaking through the bottom of the cloud, or breaking support. Two more bearish indications happened at this point. The first was the bearish cross of the conversion line and baseline. The second (Point C) was leading span 1 crossing below leading span 2.

At point D, the top of the cloud provided resistance while price attempted to break back above it. In that attempt, the baseline was adding to the strength of resistance and the conversion line bearishly exited down through the cloud. When price closed below the cloud just to the right of point D, the trend was confidently down.

Volume at Time

The last of the seven most popular studies is not applied to a price series of a security, as the rest of the studies are. *Volume at time* (VAT), as the name implies, is applied to the volume of a security that has been traded. Unlike a moving average, VAT is sensitive to the historical volume for that time period. It works differently on a daily chart than an intraday chart, so we will discuss both. But first we will discuss the generally accepted rules for analyzing price and volume together.

Volume is most prevalent in the equity, options, futures, and commodity markets. It represents the number of shares, the number of contracts, the number of barrels, the number of anything that has changed hands on a given day, or week, or even hour or minute. It can be described as a measure of market liquidity, the level of demand for a security, or a measure of momentum. It represents the amount of interest market participants have in a security. High levels of volume suggest an increased interest, while low levels of volume suggest a decrease or lack of interest.

As a measurement, volume alone is not as useful as it can be when compared to, for example, an average. If you're looking at a daily chart of price and volume, you might consider applying a 5-day, 20-day, and/or a 60-day average, giving you the rolling one-week, one-month, and three-month

comparison. When looking to confirm a change in trend, you can then compare the actual volume data to an average or one average to another.

The generally accepted rules for price and volume are as follows.

- Price is rising and volume is rising and/or above average = bullish market; the uptrend is being supported by market participants.
- Price is rising and volume is falling or below average = a warning sign that a top or consolidation of trend is near.
- Price is falling and volume is rising or above average = bearish market; the downtrend is being supported by market participants.
- Price is falling and volume is falling or below average = a warning of a bottom or a consolidation of the trend is near.

For more detailed scenarios to consider when comparing price and volume moves, see Table 1.7 and the corresponding visuals in Figures 1.19–1.21.

Historical Volume at Time

The previous theory of volume can be applied to all timeframes. On a daily chart, a moving average of volume can become unjustly skewed higher or lower due to the volume that occurred over the duration of that average. The older that volume becomes, the less influence it has on estimating trend direction. From a historical perspective, VAT considers the volume that has occurred on that day over the past X years to create the average for that day. Therefore, it can be considered a seasonal approach to volume analysis. From an intraday perspective, VAT creates an average of volume from the actual volume that occurred during that time-slice for the past X days. In both applications VAT can be projected into the future to get an idea of expected volume.

Figure 1.22 displays a daily chart of price and volume with a moving average and VAT on the volume histogram. There are four zones that highlight the benefits of using a time-sensitive study like VAT instead of a moving average. In zone 1, price was declining. Volume, when compared to the moving average, was equal to it, suggesting the market was equally interested in the down move. When compared to VAT, the actual volume was at least 50 percent greater and in some instances more than 100 percent greater. VAT was suggesting the market was more bearish in the down move than the moving average. More specifically, the first and second candle in zone 1 formed a bearish engulfing pattern on volume that was twice the VAT, but only equal to the moving average. This is very important information for those applying candle-pattern theories.

TABLE 1.7 Deeper Interpretation of Price and Volume Scenarios

Interpretation of Price and Volume Trends					
#	Overall Trend	Price	Volume	Signal	Expectation
1	Up	Setting new highs	At or above average	Bullish	Price setting higher highs/lows and breaking resistance
2	Up	Testing highs	Light/declining	Topping point, consolidation near	Consolidation of prior trend
3	Up	Sideways	Above average	Distribution, potential top	Look for support to hold; if it fails, a change in trend is likely
4	Up	Drifting lower	Light	Some distribution, consolidation	Look for a continuation or reversal price pattern
5	Down	Setting new lows	At or above average	Bearish	Lower lows/highs, price continues to break support
6	Down	Setting new lows	Light/declining	Potential bottom, consolidation near	Consolidation of prior trend
7	Down	Sideways	Above average	Accumulation, bullish	Look for a sequence of higher highs/lows breaking resistance
8	Down	Drifting higher	Light	Shorts taking profit, some accumulation	Look for a continuation or reversal price pattern
Interpretation of Volume Spikes During Price Trends					
#	Overall Trend	Price	Volume	Signal	Expectation
9	Up	Gapping up	Spiking higher	Overall bullish	Be careful, too far too fast?
10	Up	No move higher	Spiking higher	Beginning of distribution	Smart money getting out, late money getting in
11	Down	Gapping down	Spiking higher	Early capitulation	Major downtrend occurring, eventual bounce
12	Down	No move lower	Spiking higher	Beginning of accumulation	Potential bottom price pattern forming

FIGURE 1.19 Overall Trend Is Up

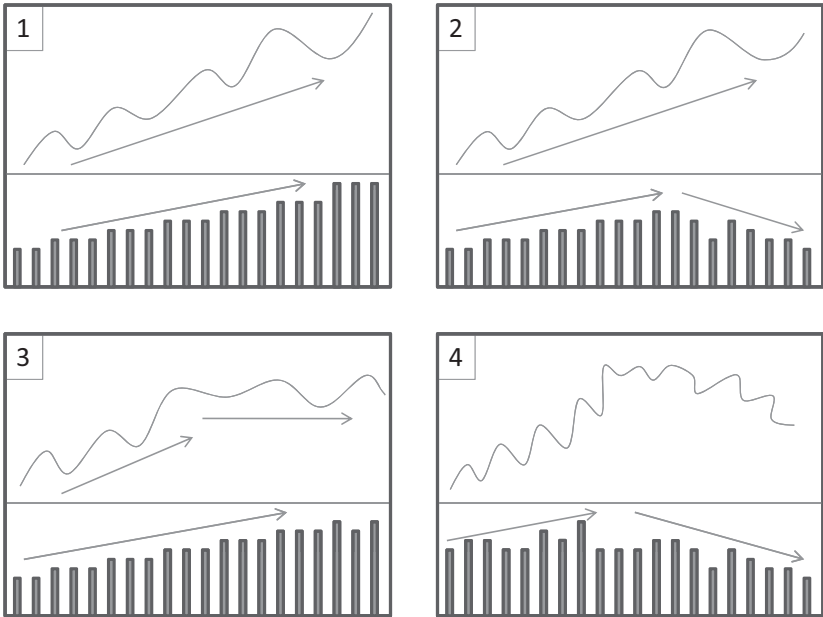


FIGURE 1.20 Overall Trend Is Down

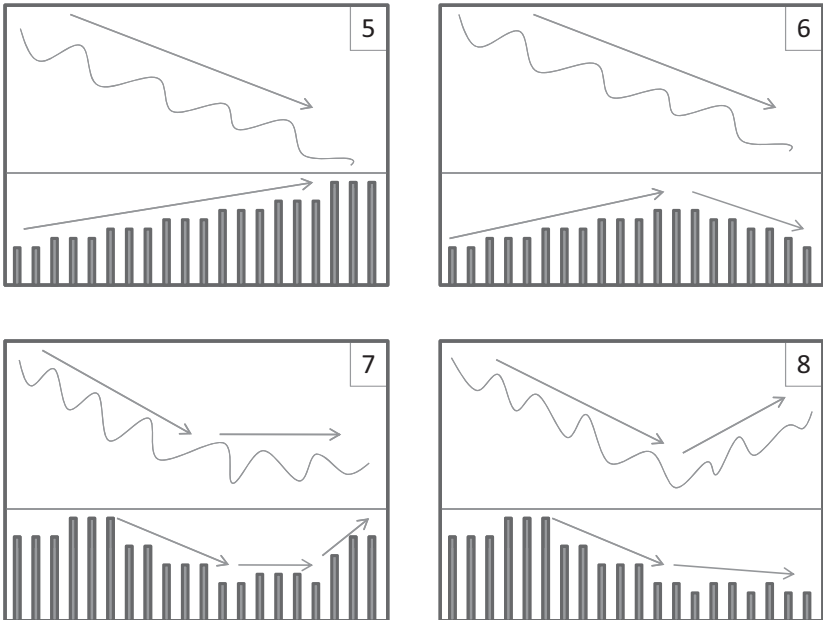
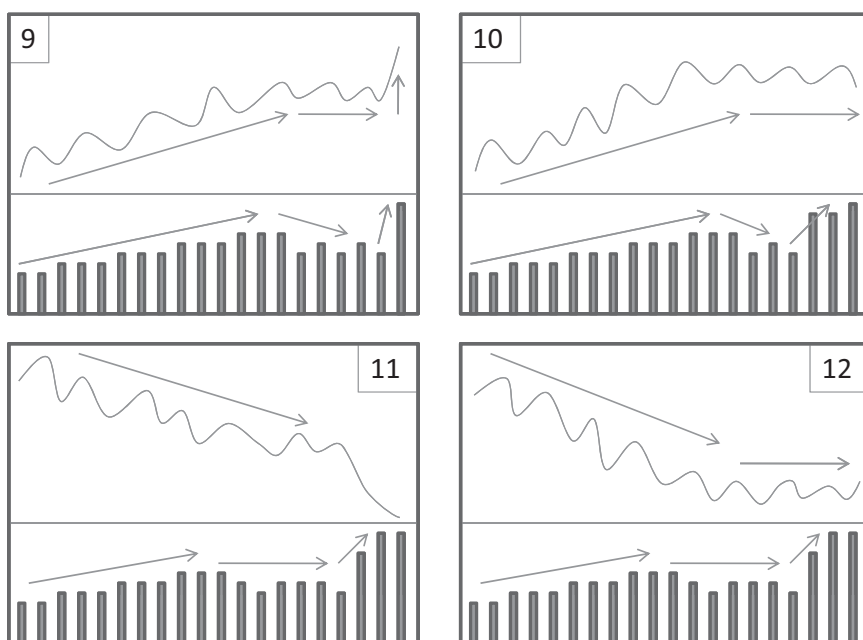


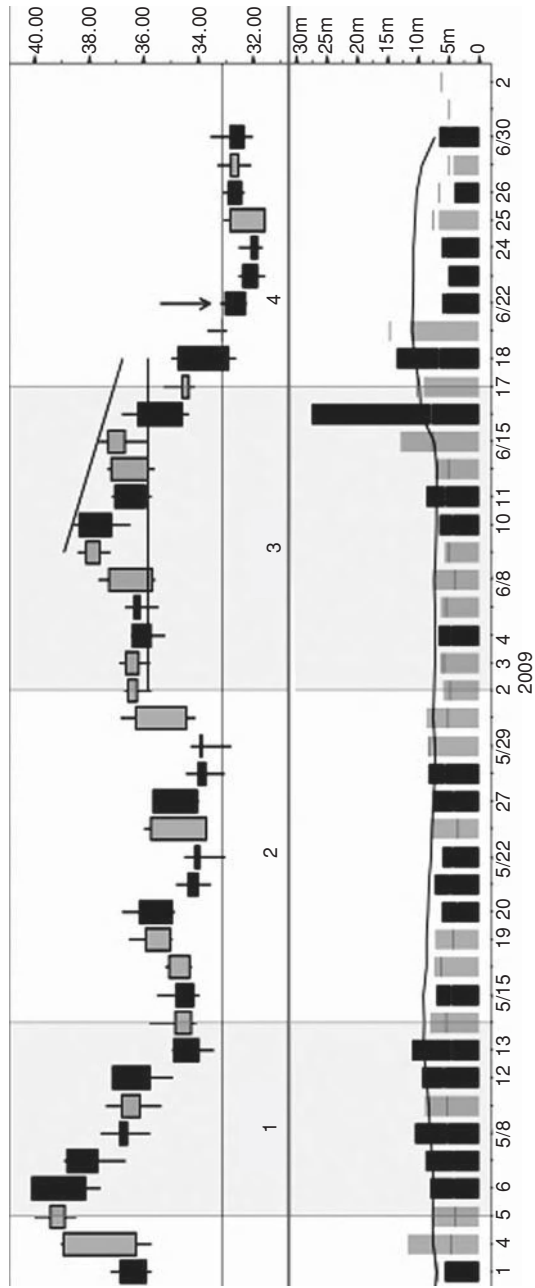
FIGURE 1.21 Interpreting Volume Spikes

In zone 2, the moving average was skewed slightly higher so that it looked as if volume was light in the sideways move at support of \$33.25. VAT suggested volume was greater than average. Table 1.7 suggests this can mean accumulation in a downtrend, particularly when a support level becomes evident (\$33.26).

In zone 3, volume was less than average and about equal to the VAT levels while price rallied from support and retraced part of the down move in zone 1. The highest high formed another bearish engulfing pattern. The first candle of the pattern had volume that was less than average, but equal to VAT. The second candle had volume that was less than average, but greater than VAT. From the VAT perspective, price on the first candle went up on average volume and the second candle went down on greater-than-average volume. The market was more interested in the selling of the security than the buying of it. This is something we could not see by using the moving average.

Zone 4 highlights the impact of a spike in volume on a moving average versus VAT. The candle that broke support (see arrow on chart) did so on volume slightly greater than VAT, while being half the moving average. Clearly, the skewing of the moving average lessens the impact of its use, when

FIGURE 1.22 Historical Chart Comparing a Volume Average and VAT



comparing to actual volume. Price then attempted to reverse higher with volume less than VAT and failed at resistance. The final bar had volume greater than VAT, but price still didn't break resistance and it was a down day, suggesting that market participants were still bearish.

It is also worth knowing that VAT can anticipate future volume levels because it can look historically to calculate those averages and plot them into the future. In zone 4, VAT is showing the next two average volume levels.

Intraday Volume at Time

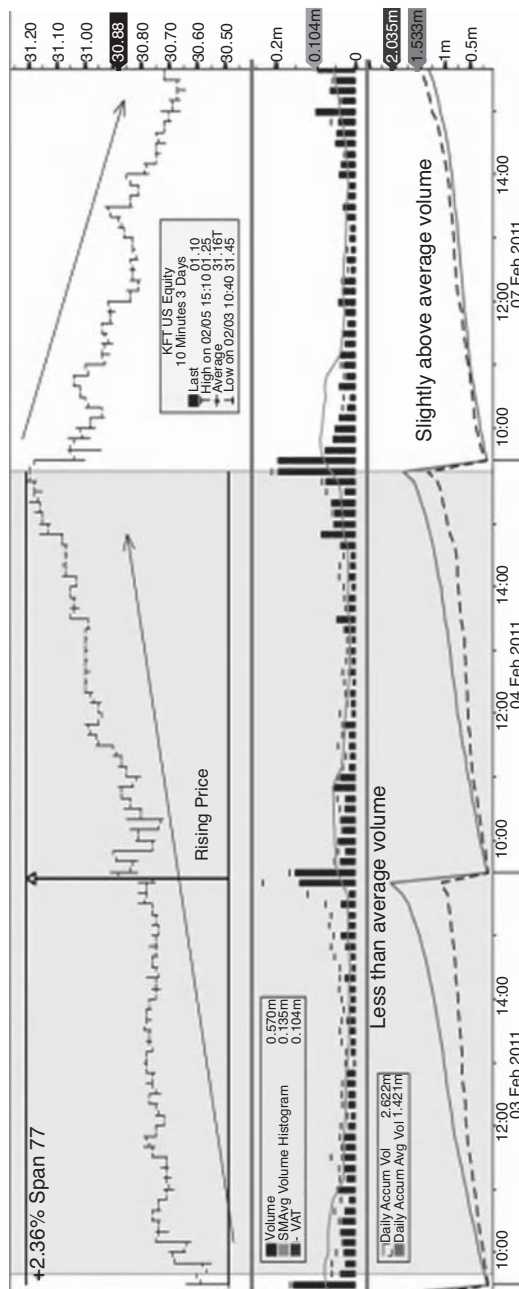
Intraday volume on a chart tends to look like a smile. It is typically heavy at the open, light in the middle of the day, and heavy approaching the close. When you're trading the open, a moving average is calculated from the prior day's closing volume. This is not an apples-to-apples comparison. It makes more sense to compare the volume from the prior morning's open to this morning's open, the prior midday's trading to today's, and the prior end-of-day's trading to today's.

VAT applied to an intraday chart is a time-sensitive average. It shows you the average volume for a specific time-slice over the past X days. For example, if you're looking at a stock on a 10-minute chart with VAT set to consider the past five periods, it will show you the volume for each 10-minute period and the average volume for that 10-minute period from the prior X days. If you are looking at the 10:00–10:10 A.M. volume, the VAT level is the sum of the volume for that same time period from the past X days, divided by X .

The indicator will display a dashed line on the volume histogram that represents the average volume level for that time-slice. It will also show a second panel that totals the sum of the accumulated volume (AV, solid line) and the accumulated average volume (AAV, dashed line) on the day.

Figure 1.23 shows a three-day, 10-minute chart. During the first two days when price gained 2.36 percent, it did so while AV was less than AAV. Volume was not supporting this two-day rally. During the second day of diverging price and volume, AAV was projected to be lower than the first day. The AV was still less than AAV. In the middle panel, at the end of day 2, the last 70 minutes of trading, or seven bars, had about equal volume but little to no price gains. The next morning, volume was greater than VAT and price declined, kicking off the retracement, with AV slightly greater than AAV.

FIGURE 1.23 Intraday Chart Comparing a Volume, Average Volume and Volume at Time



Generally Accepted Rules for Popular Indicators

To help you get to know the indicators discussed in this chapter and to be used as a reference later, I've prepared a cheatsheet of generally accepted rules for each indicator.

Relative Strength Index (RSI)

- Bullish = when RSI crosses above 30. Also when price makes lower lows and RSI makes higher lows while exiting oversold territory.
- Bearish = when RSI crosses below 70. Also when price makes higher highs and RSI makes lower highs while exiting overbought territory.
- In uptrends, RSI levels have a bias to the upside.
- In downtrends, RSI levels have a bias to the downside.

Moving Average Convergence-Divergence (MACD)

- Bullish = when MACD1 crosses above the signal line. Also when MACD1/signal turns positive.
- Bearish = when MACD1 crosses below the signal line. Also when MACD1/signal turns negative.

Bollinger Bands (BOLL)

- Wide Bandwidth: Bullish/bearish when price closes below/above the lower/upper band.
- Narrow Bandwidth: Bullish/bearish when price closes above/below the upper/lower band.

Stochastics (STO)

- Bullish = when %D and %DS lines cross above 20. Also when price makes lower lows and % lines makes higher lows while exiting oversold territory.
- Bearish = when %D and %DS lines cross below 80. Also when price makes higher highs and % lines make lower highs while exiting overbought territory.

Directional Movement Indicator

- Bullish = +DMI is > -DMI and ADX crosses above 25.
- Bearish = -DMI is > +DMI and ADX crosses above 25.
- Market is considered range-bound when the ADX is under 25.

General Overview Chart, Ichimoku: Bullish (Bearish)

- Conversion line crossing above (below) baseline.
 - If these lines cross while price is above (below) the cloud with little downward (upward) fluctuation = bullish (bearish).

- If these lines cross while the closing price is beneath (above) or within the cloud and has shown upward (downward) movement over the past few days = bullish (bearish).
- Closing price is within the cloud with little fluctuation = neutral.
- Lagging span is greater (less) than the lagged closing price = buy (sell).
- Cloud composition: When leading span 1 is above (below) leading span 2, this is a sign of a rising (falling) market. The thicker the cloud, the greater the support or resistance.

Volume Confirmation

- Bullish = price is rising and volume is rising.
- Weakening uptrend = price rising and volume declining.
- Bearish = price is declining and volume is rising.
- Weakening downtrend = price declining and volume declining.
- Accumulation = spiking volume at market lows.
- Distribution = spiking volume at market highs.

The power of these traditional and preferred indicators is still alive and well today. If you'd like to learn more about them, consider learning directly from the creators. They have certainly been leaders in the evolution of technical analysis and their work should be recognized and reviewed. See the Recommended Reading section at the back of this book.

Conclusion

I encourage you to start looking at the indicators presented in this chapter individually and then together. One suggestion for getting started is to apply two studies to a chart and look at different securities and timeframes to become familiar with the movement of the indicators in response to price. The following two figures are examples of combining one trending and one momentum study.

Figure 1.24 shows the range-bound market that the price of IBM was in from April to September 2010. During that time, RSI oscillated between 62 and 33 and MACD frequently whipsawed around the baseline. Realizing this allows us to see a change in trend when price breaks support or resistance while RSI breaks out of the 62–33 zone and the MACD lines make a new high or new low.

In the shaded zone, a new trend emerged. First, we can see from the horizontal dashed lines that price was setting higher lows and higher highs.

FIGURE 1.24 Determining Trend with RSI and MACD Combined

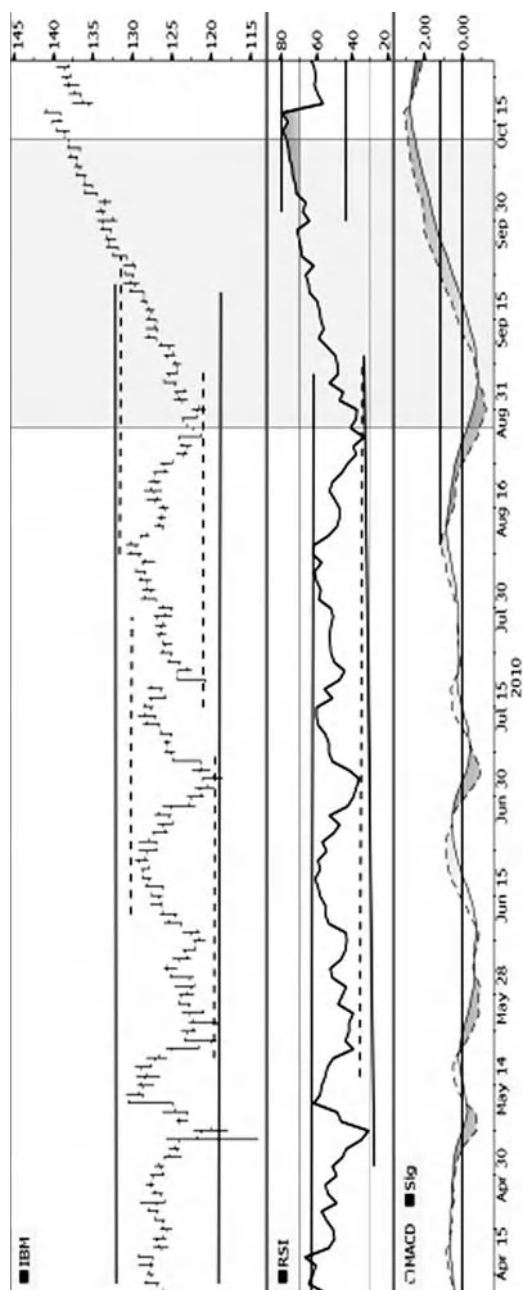
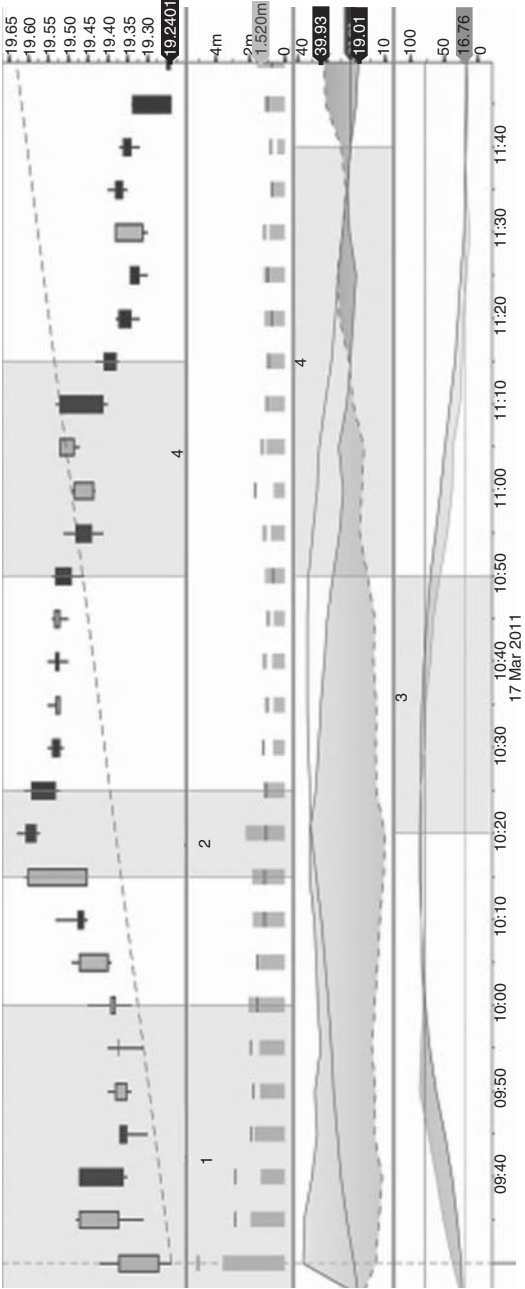


FIGURE 1.25 Determining Trend with DML, STO, and VAT Combined



Then, in the shaded zone, price broke above resistance (prior high), RSI touched 70, and almost immediately the MACD1 and signal lines broke above their prior highs. A new trend was emerging, and in this case it was up, as defined by two indicators instead of one.

Figure 1.25 combines the DMI, STO, and VAT on a five-minute intraday chart. In zone 1, price opened higher and for the first six bars, or 30 minutes of trading, volume was less than the VAT, yet price was moving higher. In zone 2, volume was 90 percent greater than VAT while price made a new high but closed the period down. Greater-than-average volume with no up movement, and in this case some down movement, is a sign of weakness for the existing trend. In zone 3, price was drifting lower and the stochastic crossed down below 80, exiting the overbought zone. In zone 4, price broke below the upward-sloping trend line and the +DMI crossed below the -DMI. All of this suggested that the strength at the open was not going to hold for the rest of the day. From the point of the trend-line break to the end of the day, price declined 1.44 percent.

CHAPTER 2

Everything Is *Relative* Strength Is Everything

Julius de Kempenaer

Taler Asset Management Ltd. & RRG Ltd.

Everything is relative strength and relative strength is everything. What does this mean? Let's imagine we are listening to the beginning of a sales call:

JULIUS: Hi, George, how are you? It's Julius here. Have you got a few minutes to go over some technical ideas in European sectors?

GEORGE: Sorry mate, I'm focusing on technology stocks this week. I'm meeting with the technology analysts of some major investment banks as well as a few local companies who will all be bringing over their best technology companies in a road show. So I'll be really busy for the next few days. If you could quickly give me your top five picks in technology, that would be very helpful . . .

This type of conversation was typical, and probably still is today, for a lot of sell-side analysts in the late 1990s and early 2000s. In an over-brokered market in which every portfolio manager and buy-side analyst receives hundreds of e-mails, reams of printed (research) reports, and dozens of phone calls every day, you need to offer something unique, something that adds value for them, and something they do not get anywhere else. You need to stand out from the crowd, one way or another. The bank where I was employed organized special training sessions to sharpen our "sales" skills. Let's say that some of these trainings were better than others, but one of the trainers had an appealing

slogan: “You’ve got to make the facts sizzle.” It could be the subject line of your e-mail that determines whether the recipient is going to open the mail at all, let alone read it. Or it could be your tone of voice when you leave a voicemail or the way that you communicate your message when you get to talk to a fund manager or an analyst in person.

In the early 2000s, I was working as a technical analyst on the trading floor of a mid-sized investment bank in Amsterdam. My primary job was being an analyst and producing technical reports for our institutional clients, and it involved a lot of client contact. I was confronted with the issues described above. Being the worst salesman in the business, I decided that my content should be the “sizzle” factor. The content I identified to be of most use to my clients was, and still is, Relative Strength Analysis. Over the years, the methods I’ve used to give my clients this information have evolved into some unique approaches, including the Relative Rotation Graph.

“This Time It’s Different”

One of the cornerstones of technical analysis is that history repeats itself. We have seen that a lot of investors react to specific situations in a similar way. They display the same characteristics over and over again, even if there are generations between the occurrences of events. Recall these important events in financial history:

The Stock Market Crash of 1929

Black Monday, October 1987

The Russian Ruble Crisis of 1998

The Dot-com Bubble of 2000

The Credit Crunch of 2008

It is remarkable to see how similar the discussions and comments were in the wake of these previous shocks. Perhaps the most-heard comment was “This time it’s different.” Usually such a statement would be followed by a discussion or explanation as to why the current crisis or shock could not be compared to a previous one.

When such discussions develop, I usually bring up the following quote:

Today’s youth loves luxury. They are bad mannered, despise all authority, show no respect and talk when they should be working. The youngsters do not rise from their seats when elderly people enter, they go against their parents, chat in company, gobble down their food and tyrannize their teachers.

Then I ask: “Do you subscribe to the statement?” followed by “Do you think it applies today?” Most people will answer positively to both these questions. These same people will be surprised when they find out who I am quoting: the Greek philosopher Socrates, in 400 B.C.

The point is, most of the time things are *not* different. They may look a little different from the outside, but at the end of the day it is history repeating itself. Investors just do not believe it. The cartoon in Figure 2.1 is a perfect example. It comes from a 1934 edition of the *Chicago Tribune* and shows striking similarities with the 2008 “credit crunch” situation.

What Is Comparative Relative Strength?

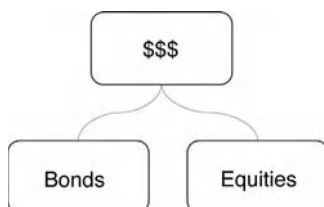
It did not take very long to figure out that institutional (equity) investors had different needs from private investors. Obviously, the size of their portfolios differs hugely, but also their investment goals or mandates are absolutely not comparable. Private investors, 99 percent of the time, are looking for absolute return, whereas institutional investors, most of the time, are interested in relative returns.

A professional fund manager typically is given a benchmark for a portfolio and his or her job is to beat that benchmark. The portfolio manager who oversees the European equity portfolio within a large institution has only to beat the benchmark attached to that specific portfolio—for example, the Euro STOXX 50 index. In a very large institution, they may even have a separate portfolio manager for each sector. The allocation to European equities is not the manager’s decision but instead comes from a chief investment officer or an investment committee.

No matter where you are in the professional decision pyramid, professional investing, like many other things in life, is all about making choices. A private investor has a choice as to whether to invest. For a professional investor who oversees a portfolio for a pension fund or an insurance company, for example, *not* investing is not a real choice.

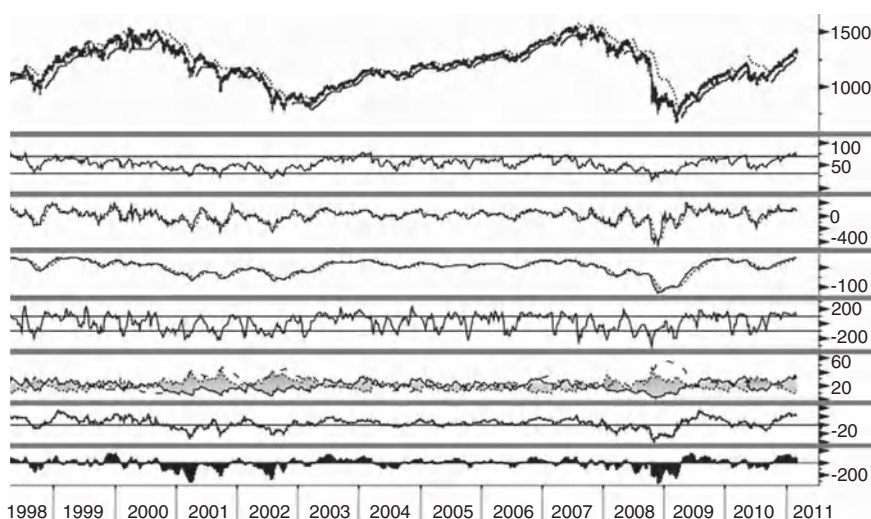
A lot of academic work, started by Brinson, Hood, and Beebower in 1986, has shown that the majority of the variance in the return of a typical (pension fund) portfolio comes from asset allocation. It therefore makes sense to follow a top-down approach, which creates a decision pyramid or tree. This decision tree can be very simple or very complex.

Imagine a very simple asset allocation choice, as shown in Figure 2.2. The choice that the fund manager is facing is whether she should invest in bonds or equities, or perhaps more realistically, whether she should overweight bonds

FIGURE 2.2 Simple Asset Allocation Choice

Using any type of chart or combination of graphs, any technician can come up with a more-or-less informed opinion on the equity market or the bond market. The problem is that these single security graphs will answer only the question of whether to invest in that specific security. Viewing the market in a broader context is more difficult. In the technician's toolbox there is only one technique that helps to make choices and to distinguish between two securities, and that is *relative strength* (RS). Relative strength, as used here, should not be confused with Wilder's Relative Strength Index (RSI), which is a single-security indicator. Relative strength is used to measure the strength of two securities or indices against each other. It is therefore often referred to as *comparative* relative strength.

FIGURE 2.3 Simple Bar Chart of S&P 500 Index

FIGURE 2.4 Complex Chart of S&P 500 Index with Indicators

The standard relative strength line is simply defined as:

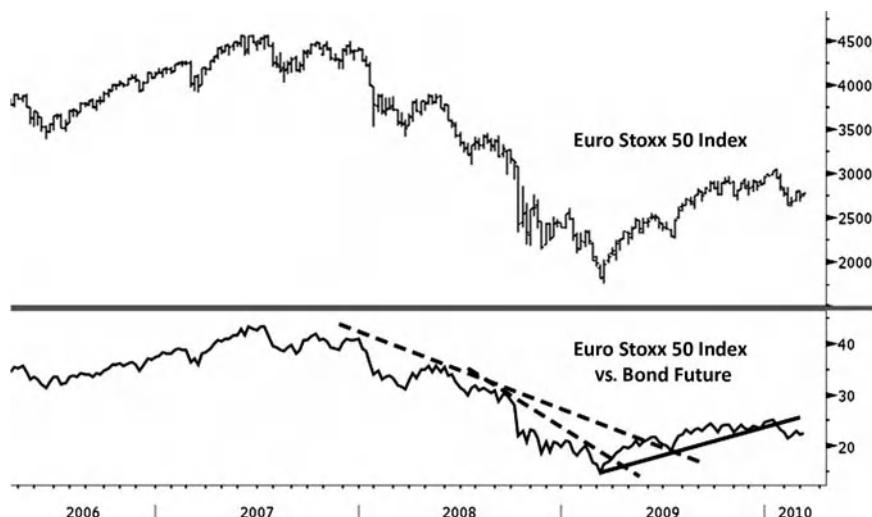
$$RS = \text{close security A} / \text{close security B}$$

The close can be the close of any timeframe from one-minute intraday series to monthly or even longer data series. Very often such an RS line is used to compare the performance of an individual stock against an index, for example, or two stocks against each other. When plotted in combination with a standard bar graph, the RS line appears as shown in Figure 2.5.

The interpretation of a RS line is very straightforward. If the RS line moves up, security A is outperforming security B, and obviously if the RS line is moving down, security B is outperforming security A.

All techniques, tools, and indicators as we know them in technical analysis are used to make only one decision: “Do I buy or sell this security?” The RS line is the only tool in the technician’s toolbox that can be used to make wider choices. It helps to distinguish between two securities and to declare a preference, for example, “Do I buy security A or security B?”

Figure 2.5 shows the price (bar) chart of the Euro STOXX 50 index in the upper pane and the relative strength line of the Euro STOXX 50 index against the 10-year Bund future (the benchmark bond market in Europe) in the lower pane.

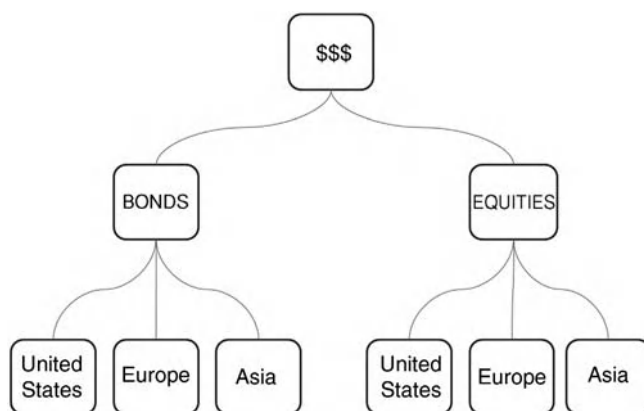
FIGURE 2.5 Euro STOXX 50 Index with RS Line against Bund Future

When we look at a number of these RS graphs, we can conclude that the RS line moves and behaves like the price chart of a single security. This means that an RS line can be analyzed as if it were a security in its own right. We can draw trend lines on them, use moving averages (MA), use indicators, and much more.

After a strong decline from mid-2007 into a low that was formed in the beginning of 2009, the RS line started to move up, breaking the falling trend lines and making higher highs and higher lows. That was enough to indicate that equities were outperforming bonds again, therefore suggesting a preference of equities over bonds in the asset allocation of a portfolio. The relative up-trend continued until the beginning of 2010, when the RS line failed to set a new higher high and then broke down through the rising trend line.

The RS line can be drawn on different periodicities ranging from daily to monthly, but also on intraday timeframes (5-minute periods, 10-minute periods, hourly periods, etc.). During my career as a sell-side analyst, I primarily used the weekly timeframe in my reports. I found that it suited the longer time horizon of most institutions and showed less noise than a daily timeframe. Although I will usually use weekly graphs in the examples, please bear in mind that the method can be used on every other timeframe as well.

Using a relative strength chart like the one in Figure 2.5 will help the technical analyst to make an informed decision on the equity/bond choice.

FIGURE 2.6 More Complex Asset Allocation Decision Tree

If we then step down one level in the decision tree to where, for example, a choice has to be made on which region to invest in (e.g., United States, Europe, or Asia), our decision tree starts to look like the one in Figure 2.6.

The example with the United States, Europe, or Asia is still a universe that is limited in the number of elements. Only a small number of charts have to be studied to get guidance on the proper asset allocation or over-/underweighting of the various regions.

The relationships that have to be analyzed and decided upon in the three regions can be found by using the matrix shown in Table 2.1.

The possible combinations that can be derived from the table are United States versus Europe, United States versus Asia, or Europe versus Asia. Obviously we do not have to look at United States versus United States, but we also may forget to look at Europe versus United States, as it is the reverse of United States versus Europe, which we already included in our list. Therefore, a 3×3 matrix presents three combinations for analysis.

TABLE 2.1 Matrix of Relationships to Be Analyzed

	United States	Europe	Asia
United States	×	✓	✓
Europe		×	✓
Asia			×

The formula that can be applied to calculate the number of combinations to analyze is:

$$[(\text{Elements in the universe})^2 - \text{Elements in the universe}] : 2$$

In this case

$$(3^2 - 3) : 2 = 3$$

Another level down in the decision tree, we could find a sector decision for each region, for example. Assume that for the U.S. region, the sector universe consists of the 10 GICS level I economic sectors. This would give:

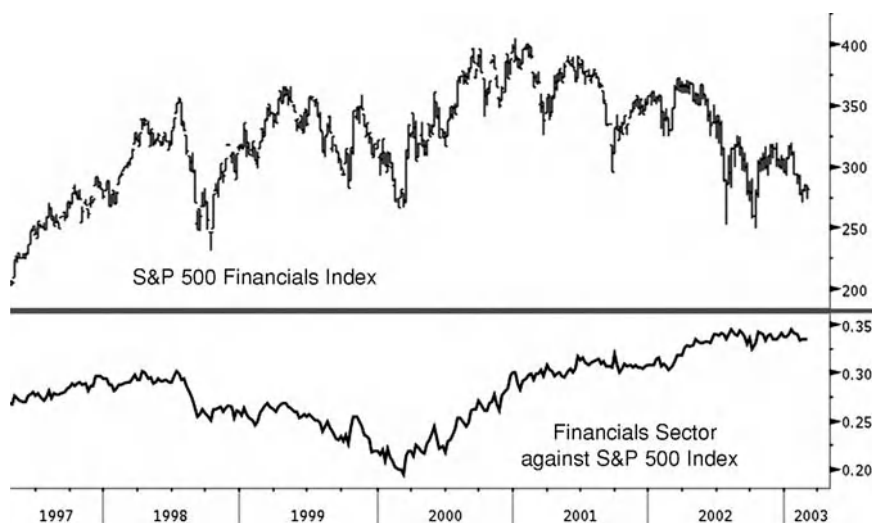
$$(10^2 - 10) : 2 = 45 \text{ charts to look at and 45 judgments to make.}$$

In Europe, where the Euro STOXX family of (sector) indices is often used, it comes down to:

$$(19^2 - 19) : 2 = 171 \text{ charts}$$

Imagine going into the selection of individual equities. The first thing to do to get on the radar screen of a portfolio manager is to offer them a piece of research that adds value to their process. As a technical analyst, I translated that into a monthly technical research report based on relative strength. In a very original mood, I dubbed it “The European Sector Report.” That report formed the foundation for the relative rotation graphs that I will introduce later in this chapter.

In the early days I used a very straightforward relative strength approach. Figure 2.7 shows the weekly bar chart of the S&P 500 Financial sector (1998–2003) and the RS line of the Financials sector against the S&P 500 index. Overall, the rising RS line from 2000 to 2003 tells us that financial stocks were outperforming the broader S&P 500 index. Considering the movements in more detail, starting from the RS low in March 2000 through 2001, the line was rising, or the financials were outperforming the S&P 500. Toward the end of 2001, the RS line began moving sideways, or equally performing the S&P 500 index. During this time, the price of the financial index was making some lower highs and lower lows, but wasn’t underperforming the benchmark. At the start of 2002 and into 2003, equal performance turned back into outperformance. The broader market was declining more than this sector. By 2003, the financials index was at the same value as at the start of

FIGURE 2.7 S&P 500 Financials Index with RS Line against S&P 500 Index

2000. During that same period, the S&P 500 index dropped from highs near 1500 to lows around 800–900. Investors holding financial stocks during that period didn't lose much at all, while those who owned the broader market lost upward of 40 percent.

Although the RS line itself is already very helpful, it is still a fairly volatile line. While it clearly shows relative trends, there is still a lot of noise present and gauging the direction of “trend” remains a subjective call. In order to overcome some of these issues, I reverted to the use of some “old friends” in technical analysis, namely moving averages. Just as we use moving averages on price charts and in many other indicators, we can use moving averages on RS graphs in order to determine trends.

Figure 2.8 shows the weekly bar chart of the S&P 500 Energy sector with the relative strength line against the S&P 500 index. Through the RS line I have drawn two moving averages, one with a look-back period of 10 weeks and one with a look-back period of 30 weeks.* The crossings of the two trigger a change in the trend of the RS line. When the 10-week moving average is above the 30-week moving average, we rate the RS

*I have been using the combination of 10- and 30-week look-back periods since 1994. They continue to serve my purposes, but anyone can change these values according to their preferences.

FIGURE 2.8 S&P Energy Index with RS Line against the S&P 500 Index

line as being in an uptrend. When the 10-week moving average is below the 30-week moving average, we rate the RS line as being in a downtrend. This is the same application as applying moving averages to a price chart. The only difference to keep in mind is that we are now looking at relative movements. So when we have an RS line that is in an uptrend (10-week above 30-week), then we could still have a situation where the security we are looking at is dropping but the benchmark, for example, the S&P index, is dropping even faster. Although the result will be negative in absolute terms, the security is outperforming the benchmark, and that is exactly what professional money managers are looking for. Clearly the reverse is true as well: When the S&P index is rising, we are looking for sectors or stocks that are rising even faster.

Interpreting the trend of the RS line on the basis of the position of the moving averages takes a lot of the guesswork out of the analysis and makes it less subjective. However, the use of moving averages, by definition, introduces a lag. As a result, we can distinguish one more situation and that is when the 10-week moving average has crossed above the 30-week moving average, which signals an uptrend, but the raw RS line has already crossed back below both the 10- and the 30-week moving average. Such a situation will be seen as a warning signal that maybe something is cooking. So when

the 10-week average is still above the 30-week average, but the raw RS line has dropped below both averages, the trend is rated neutral. The same goes for the reverse when the 10-week average is below the 30-week average (a downtrend), but the raw RS line has crossed above both of the moving averages.

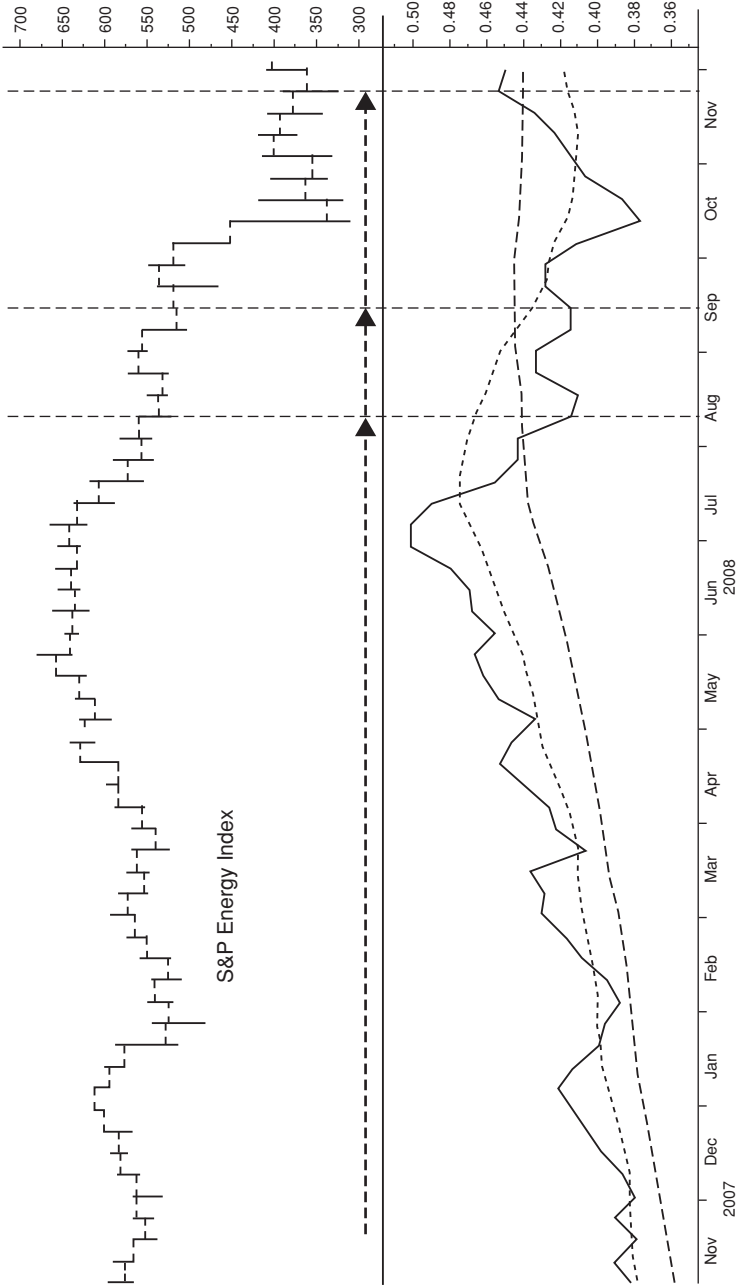
This is better illustrated in Figure 2.9. This is the same view as shown in Figure 2.8, but zoomed in on the November 2007 to November 2008 period. Up until August 2008, the 10-week moving average is clearly above the 30-week moving average, indicating an uptrend, and thus an “outperformance” condition for the Energy sector. At the first dashed vertical line, the RS line drops below both moving averages, while the 10-week moving average is still above the 30-week moving average. This characterizes a “neutral” condition (something is cooking). A few weeks later in September, at the second dashed vertical line, the 10-week moving average crosses below the 30-week moving average, triggering an “underperformance” condition. Finally in November, at the third dashed vertical line, the RS line crosses above both moving averages, triggering another neutral condition.

For a long time this was the type of chart that I used in communications with institutional investors, and it served its purpose fairly well.

At the end of the 1990s, a number of these RS lines started to overshoot to the upside, creating huge differences between the moving averages and RS lines way above the 10- and 30-week moving averages. This created a situation where the raw RS line, and therefore the price of the security, could drop substantially before triggering a change in trend. Basically, they were giving away a lot of the gains that were run up during the rally.

In an attempt to speed up the signals from my RS graphs in combination with their moving averages, or at least to get an early warning signal, I started to experiment with overlaying some other indicators on the raw RS line. I ended up using the well-known moving average convergence/divergence (MACD) technique. This indicator looks at and draws the difference between two moving averages on a price chart (usually 12- and 26-periods, but they can be varied to suit the individual investor’s needs), resulting in a line that oscillates around zero. If the MACD reads positive, it means that the shorter moving average lies above the longer moving average; that is, the market is moving up, and vice versa. The higher the reading of the MACD, the bigger the difference between the two moving averages, hence the more price action in the opposite direction is needed to push the MACD line below (or above) the zero line. In order to detect the moment where the difference between the shorter and the longer moving averages is starting to decrease, a so-called trigger-line is

FIGURE 2.9 S&P Energy Index with RS Line against S&P 500 Index, Close-Up View



drawn through the MACD line. This trigger-line is simply a 9-period moving average of the MACD line (this timeframe can be varied). Therefore, in the default setting, the MACD line crosses above and below the zero line when the 12- and 26-period moving averages cross each other on the price chart. The crossings of the MACD-line and its own trigger-line are then used as an early warning indicator, alerting the trader that the distance between the two moving averages is shrinking.

With slight modification, this whole exercise can also be executed on a raw RS line. I usually use a combination of the 10- and 30-period moving averages on the raw RS line. If we draw a RS-MACD that looks at the difference between the 10- and 30-period moving averages of the raw RS line, we will get a line that oscillates around zero, indicating the strength of the *relative* trend. The higher (or lower) the value of the RS-MACD line, the stronger the trend of the underlying RS line. This RS-MACD line will then cross above and below the zero line, when the 10- and 30-period moving averages in the RS-graph cross each other. To get early warning signals and detect the point in time when the distance between the two moving averages starts to decrease, a trigger-line (9-period moving average of the RS-MACD line) is drawn. A crossing of the RS-MACD line below its trigger-line indicates that the relative uptrend is losing momentum and turning the other way. A crossing of the RS-MACD line above its trigger-line indicates that the relative downtrend is losing momentum and starting to turn around.

Figure 2.10 shows the same chart as in Figure 2.9, but now the RS-MACD has been added in the bottom pane. The rally from early 2007 into mid-2008 is a good example of a very strong market that starts to turn. Due to the lag that's introduced by using moving averages, the 10- and 30-week averages on the RS line (middle pane in Figure 2.10) were very far apart. The RS-MACD catches the deterioration in a very early stage by setting a peak in mid-2008 (see label 1) and turning sharply down, giving an early warning signal that the relative outperformance of this sector might have come to an end. By the time the averages on the RS line are crossing each other (see label 2), the RS-MACD line crosses below zero.

This approach works well when only one item is analyzed against a benchmark at a time. The numerical values of the raw RS line cannot be used and have no real meaning. It is the slope of the line on the chart that gives the clues. The numerical readings of one security against a benchmark cannot be compared with the numerical readings of another security against the same benchmark. See the examples in the next two graphs. Figure 2.11 shows the RS line of the European utilities sector against the STOXX 600 index. This RS line is clearly trending down from high values near 1.70 to low

FIGURE 2.10 S&P Energy Index with RS Line and RS-MACD against S&P 500 Index

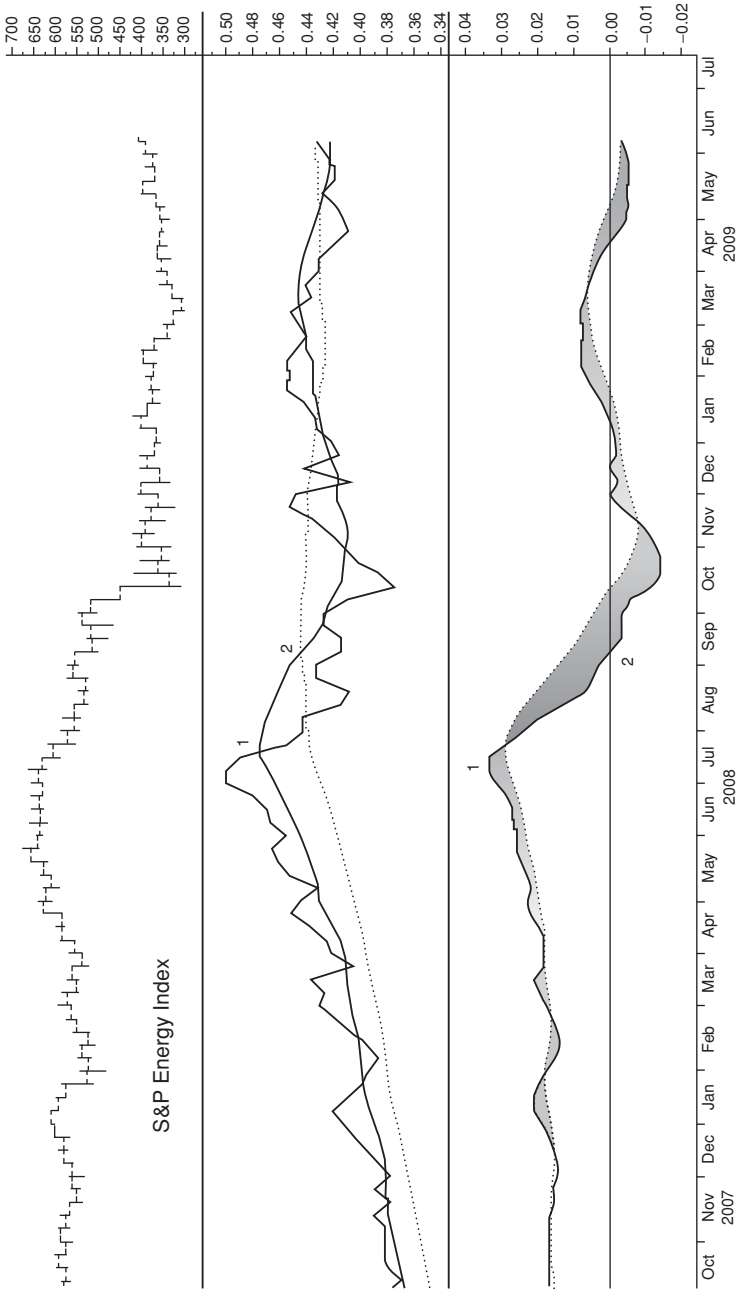


FIGURE 2.11 European Utilities Sector with RS Line against STOXX 600 Index



values around 1.10. Figure 2.12 shows the RS line of the European Travel & Leisure sector against the STOXX 600 index. This RS line is clearly trending up but has much lower numerical values, from lows near 0.40 up to levels around 0.50.

Given this situation, the resulting values for the RS-MACD line and its trigger-line will therefore have no real meaning, either.

FIGURE 2.12 European Travel & Leisure Sector with RS Line against STOXX 600 Index



The JdK RS-Ratio and JdK RS-Momentum

In order to be able to compare all elements in a universe and rank them based on their numerical readings—that is, high values are good and low values are bad—we need something else. What we are looking for is a uniform measure of relative strength that can be used across all the elements in a universe against the benchmark for that universe, but also to measure the relative strength of one element against another element. My search for such a measure resulted in the development of the (proprietary) JdK RS-Ratio.* This indicator measures the relative strength of all elements in a universe in such a way that the numerical results are all comparable. Not only are the values of the JdK RS-Ratio telling whether an element of the universe is doing better than the benchmark, they are also telling if an element is doing better or worse than another element.

The JdK RS-Ratio can therefore be used to rank a universe based on relative strength and answer the question, “What are the five best sectors, stocks, and so forth?” (see Table 2.2).

Table 2.2 shows an example of the STOXX universe ranked on the value of the JdK RS-Ratio indicator. The differences are clearly visible. There is only one problem with this table: it is a table—and technicians do not like tables. We like to see graphs! The snapshot of values that is printed in the table definitely gives valuable information regarding the current relative status of all elements in the universe. But how does that value compare to its own history? How did that element get to its JdK RS-Ratio value and the accompanying position in the table? In what direction is the JdK RS-Ratio value heading, up or down? To answer these questions, we need the graphical history of the JdK RS-Ratio. Figure 2.13 shows the JdK RS-Ratio line of the European Retail sector versus the STOXX index.

When we plot the JdK RS-Ratio below the price graph, it gives a pretty good indication of the relative strength of the security being analyzed against its benchmark. The visual inspection of that line is as straightforward as the interpretation of the raw relative strength line; a rising JdK RS-Ratio is good, that is, the stock is “outperforming,” and a declining JdK RS-Ratio is bad, that is, the stock is “underperforming.” Despite the fact that we can use the JdK RS-Ratio as a uniform measure of relative strength by interpreting high values as strong and low values as weak, and that we can plot the indicator on a regular price chart in order to get an indication of the relative position of that element, it’s still not painting a complete picture of the market.

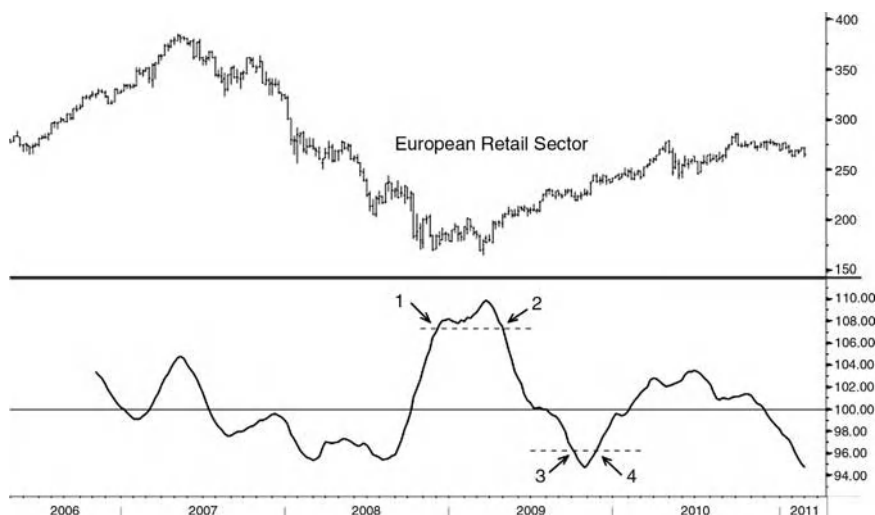
*The JdK RS-Ratio indicator is available on the Bloomberg terminal.

TABLE 2.2 European Sectors Ranked by JdK RS-Ratio Value

Index Name	JdK RS-Ratio
STXE 600 Au&Pt € Pr	112.03
STXE 600 BsRs € Pr	107.95
STXE 600 Chem € Pr	105.62
STXE 600 Ig&S € Pr	104.00
STXE 600 FnSv € Pr	103.09
STXE 600 Cn&Mt € Pr	102.67
STXE 600 Tr&Ls € Pr	102.45
STXE 600 Oil&G € Pr	102.18
STXE 600 Pr&Ho € Pr	101.78
STXE 600 Tech € Pr	100.80
STXE 600 ReEs € Pr	100.05
STXE 600 Fd&Bv € Pr	100.02
STXE 600 Mda € Pr	99.40
STXE 600 Ins € Pr	98.14
STXE 600 Tel € Pr	98.13
STXE 600 HeCr € Pr	97.74
STXE 600 Rtl € Pr	97.51
STXE 600 Util € Pr	97.47
STXE 600 Bnk € Pr	92.66

The problem that surfaces here is that one “high value” may not be the same as another “high value.” This is better explained using Figure 2.13. Toward the end of 2008 (see label 1), the JdK RS-Ratio line is moving around 108, which is a relatively high value. A couple of months later, in April 2009 (see label 2), the JdK RS-Ratio line is again moving around 108, at the same relatively high value. But this time the line is clearly moving down as opposed to up, with acceleration on the first occasion. Obviously, the first situation is preferred over the second one.

A similar situation occurs at low(er) levels. In September 2009 (see label 3) the JdK RS-Ratio line is moving around 96, which is a relatively low level. In December (see label 4) the line is once again around 96, which is still a

FIGURE 2.13 Europe Retail Sector with JdK RS-Ratio Line versus STOXX Index

low level, but now the line has started to move up again and could be more interesting.

What we need here is an objective way to determine whether the JdK RS-Ratio line is moving up or down. In order to achieve this, we borrow the technique of using a trigger-line, as it is used in the construction of the MACD indicator. So a 9-period trigger-line (moving average) is drawn through the values of the JdK RS-Ratio line. When the JdK RS-Ratio line is above its trigger-line, the trend of the JdK RS-Ratio line is *up*. When the JdK RS-Ratio line is moving below its trigger-line, the trend is considered to be *down*. Such an example is shown in Figure 2.14.

The graph once again shows the European retail sector with the JdK RS-Ratio line, but now also the trigger-line has also been added. The use of this trigger-line helps to determine when the trend of the JdK RS-Ratio line has changed from up to down (see label 1) and the other way around from down to up (see label 2).

When the JdK RS-Ratio line is moving above the 100-level and crosses below its trigger-line, the momentum of the JdK RS-Ratio line starts to deteriorate and decline. This deterioration of momentum can be the prelude to the JdK RS-Ratio line eventually crossing below the 100-level. This is a definite signal that relative strength has turned negative.

Similarly, when the JdK RS-Ratio line is moving below the zero line and crosses above its trigger-line, that is the moment when the momentum

FIGURE 2.14 Europe Retail Sector with JdK RS-Ratio Line versus STOXX Index and Trigger-Line



of the JdK RS-Ratio line is starting to improve. If the improvement of this momentum continues, the JdK RS-Ratio line will eventually cross above the 100-line, signaling positive relative strength for the instrument at hand.

The graph in Figure 2.14 is an excellent example of the fact that a measure of relative strength can move up while prices are moving down, and can move down while prices are moving up. In the last quarter of 2008, when equity markets worldwide were going through serious declines, the JdK RS-Ratio line of the European retail sector started to move up, indicating an outperformance of this sector. At that time, the European retail sector index also fell in price, but far less than the broader benchmark against which its relative strength is measured. Similarly, when equity markets in general started to move up again in March 2009, the JdK RS-Ratio line crossed below its trigger-line, indicating a weakening of the positive relative strength, and finally the JdK RS-Ratio dropped below the 100-level, which definitely signals underperformance. All this happened while the index itself showed rising prices, but they did not rise rapidly enough. Other sectors were doing much better than retail during that period.

In fact what the trigger-line helps to measure is the momentum of the JdK RS-Ratio line. Once again, in order to be able to use a measure of momentum across a universe, it needs to be reworked into a uniform indicator: this became the JdK RS-Momentum indicator. This uniform measure of relative

FIGURE 2.15 European Retail Sector with JdK RS-Ratio and JdK RS-Momentum Lines versus STOXX Index



momentum can be used to further compare elements in a universe against a benchmark and against each other.

An example of the JdK RS-Ratio line and the JdK RS-Momentum line together in one graph is shown in Figure 2.15. This graph again shows the European retail sector, but this time in combination with the JdK RS-Ratio line (solid) and the JdK RS-Momentum line (dotted) plotted in one graph below the price chart. By plotting the two uniformed measures on one chart, the interaction between JdK RS-Ratio and -Momentum becomes clear. JdK RS-Ratio is considered to be the most important and most influential numerical measure. However, it is clear in the chart that JdK RS-Momentum is leading the JdK RS-Ratio and thus serves as an early warning signal. When JdK RS-Momentum drops below the 100-level, the JdK RS-Ratio has formed a peak and has started to move down. When JdK RS-Momentum crosses above the 100-level, the JdK RS-Ratio line has formed a low and has started to move up.

By using the indicators and the graphs described above you get a structured approach to analyzing the relative position (attractiveness) of the elements in a universe vis-à-vis a benchmark. This “universe” can be any group of securities or indices that are comparable. It can be a group of sector-indices against a broad index like the 10 S&P 500 economic sectors (GICS level I) against the S&P 500 index or the 19 STOXX sector indices against the STOXX

600 index. Or it can be all members (individual equities) of a sector index, for example, banks, against the appropriate sector index (the banking sector index, in this case).

Be careful when the universe contains, for example, both equity and interest-rate-related instruments. Make sure that all elements are on the same footing; usually the best thing to do is to use fixed income (total return) indices in order to compare them against equities.

In my European Sector Report, I used the STOXX 600 universe and presented the charts of all 19 sector indices with their relative strength against the STOXX 600 index, with comments on their relative attractiveness and expectations or the relative trends going forward. In the comments I highlighted some interesting equities that were showing strong relative pictures against their sector index. In this way I wanted to present a top-down approach for fund managers. First I identified the sectors that were expected to outperform the general index, and then I selected individual equities that were expected to outperform their sector index. The selection of individual equities was also done on sectors that, as a whole, were showing a downtrend against the broader market. The rationale behind that is that a professional fund manager who oversees a portfolio of European stocks is very unlikely to have, for example, no banking stocks whatsoever in his portfolio. He may have an underweighting of banks against the weight of banking stocks in the broader benchmark, but will rarely have none. So there is still a need for some guidance toward which banking stocks to hold, even if the sector is underperforming.

After putting together the report on a monthly basis, which is fun, the hard work started: calling the fund managers and trying to get my message across and hopefully pick up some trades. This was desperately needed to finance the fun! This was the moment when the question posed at the beginning of the chapter used to pop up: “What are your five best picks?” Now I was able to answer that question and even back it up with some numbers!

This routine continued for a number of months with reasonable success, both in terms of results of the recommendations as well as sales success. At some stage I was given an intern on the desk, an econometrics student who was going to write his thesis on the use of technical analysis in investment analysis. Among other things, one of the studies he conducted was to evaluate the results of the recommendation that had been published in the European Sector Report for the four years it had been published at that time. The recommendations that were used in that report were “outperform,” “underperform,” and “neutral.” After evaluating all the recommendations from the four years’ worth of reports, he found that the recommendations produced a

“significant outperformance compared to the benchmark.” A good start, but not good enough as it covered only four years of monthly data, that is, 48 observations. As the data for the indices used in the report (STOXX family) went back to 1987 and the “rules” to get to the recommendations were fairly clear, the next study he did was to take the data set starting in 1987 and run the rules to get the recommendations and evaluate the hypothetical results again. Once again, the outcome of the test was that the results showed a significant outperformance compared to the benchmark. To me it was proof that the approach was valid and that we were actually adding value to the investment process for clients.

With that whole dataset and all the results (albeit, hypothetical results), some more tests were used to validate the approach. One of these tests was to look at all the recommendations ($1987-2003 = 16 \times 12 = 192$ months $\times$ 18 sectors = 3,456) and see what the excess return compared to the benchmark was three months after the recommendation had been issued. The result of that test was that both the outperformance and the underperformance recommendations, on average, generated an excess return. But what was very interesting to see was that the average excess return of the underperform recommendations was significantly higher than the excess return of the outperform recommendations.

Now, this observation puts the question, “What are your five best picks?” in a whole different light. Basically, it is the wrong question. The right question to ask is “Which five stocks, sectors, and so forth, should I avoid?” As a matter of fact, the rationale behind this is probably very recognizable for many of us. If we look back at the end of a year, we will always recognize a number of positions about which we can say “If we had not had those . . .” If we are able to avoid the bleeders, the results (i.e., outperformance) will more or less follow automatically.

So we moved from raw relative strength to two measures of relative strength that make all elements in a universe comparable. On the one hand, there is the JdK RS-Ratio that measures the relative strength of the security against its benchmark, and on the other hand, there is the JdK RS-Momentum, which measures the direction and the rate of change of the RS-Ratio line. This basically tells us if relative strength is getting stronger or weaker and whether it is turning up or down. We also found that identifying the underperformers in a universe is more important than finding the outperformers. The only thing missing was a good way to get this information to clients in a simple and understandable way.

With this knowledge I changed the layout of the report somewhat to also include the underperformers in a universe both on a sector level as well as

on individual equities. I kept the graph of the broad market index (STOXX 600) followed by graphs of each individual sector with a pane showing JdK RS-Ratio and JdK RS-Momentum of the sector against the broad market index. But instead of highlighting some interesting individual names in a written comment, I ranked the whole universe based on the JdK RS-Ratio and added a table for each sector showing the best (i.e., strongest) five stocks of that sector, but more importantly the table also showed the worst (i.e., weakest) five stocks of that sector in an attempt to (also) draw attention to the weaker sectors or stocks of a universe!

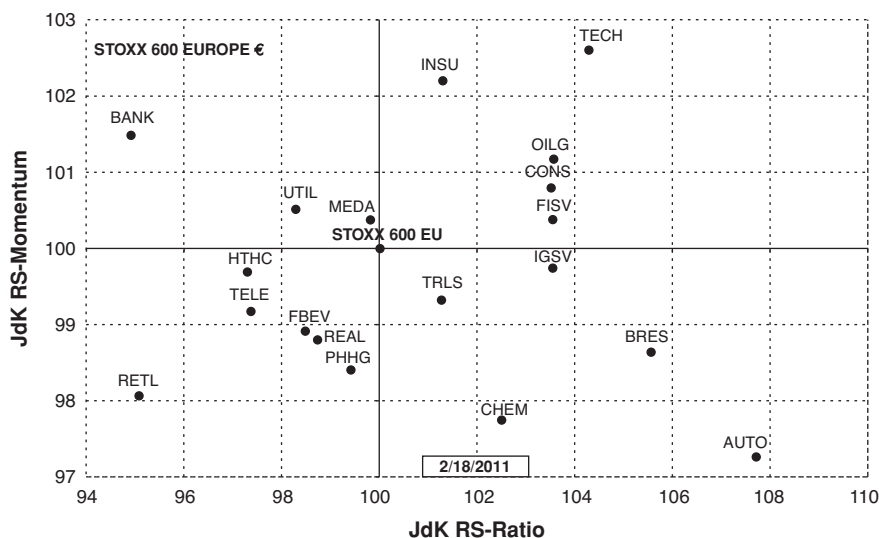
Once again, this proved to be an improvement of the format as it answered a lot of questions beforehand that clients were going to pose. The problem that persisted was that either the analyst who was going to give ideas to the portfolio manager, or the portfolio manager himself, still had to browse through all the individual elements of a universe to determine which sectors or stocks inside a sector were going to be good candidates to overweight or underweight. The desire to better visualize all these relationships and present them to clients in an easy-to-understand way was very much there, but the method for how to go about this was missing.

I experimented with many different chart formats and tables. With hindsight I can now say that most technicians are so accustomed to the classical way of charting prices, with time on the horizontal (x -) axis and prices and/or the values of indicators on the vertical (y -) axis, that it is difficult to alter that routine.

I must have had a very bright moment when pulling up a very basic x,y scatter plot and starting to fill it with the JdK RS-Ratio as the x -value and JdK RS-Momentum as the y -value. The first time I did this, I was working with the 19 STOXX sectors in the European universe. Filling the plot with the x,y values for these 19 sectors gave me a picture like the one in Figure 2.16, which became a very revealing picture.

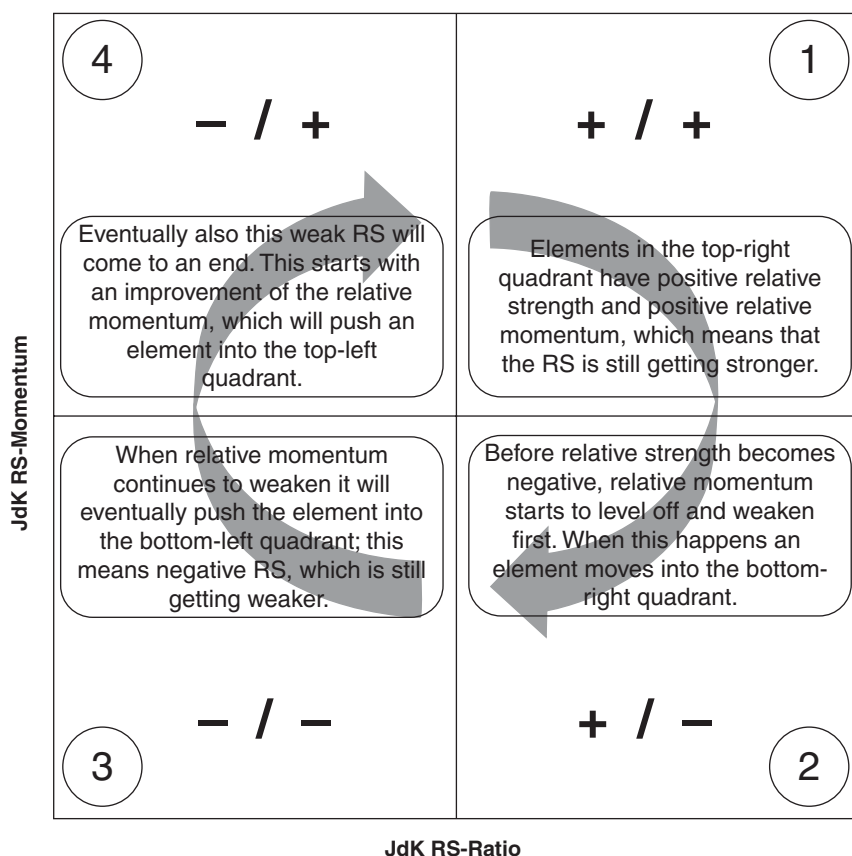
But what are we looking at? The best way to describe this and build the picture is to start with a schematic overview of what is going on in the scatter diagram as shown in Figure 2.17.

On the horizontal axis the JdK RS-Ratio is plotted, while the JdK RS-Momentum values are plotted on the vertical axis. That is done for all elements in the universe. Both axes are crossing at the 100-level, which is the midpoint of the chart. As all elements are scaled against a benchmark, this benchmark becomes the anchor point of the chart at the 100,100 crossing. The interpretation for both measures is that values above 100 are good and values below 100 are bad. The higher the value, the stronger it is, and the lower the value, the weaker it is.

FIGURE 2.16 Scatter Plot with 19 STOXX Sectors

The top-right quadrant is where we will find the elements that have a strong relative strength, that is, high JdK RS-Ratio values, and where that relative strength is still rising further. So this is the area where you will find the elements that you want to be overweight or long in a portfolio. Before the JdK RS-Ratio values start to decline and eventually cross below the 100-level, first JdK RS-Momentum will start to level off and then begin to decline. When that happens the element drops into the bottom-right quadrant. These are the elements in which the relative strength is still positive—JdK RS-Ratio at levels above 100—but momentum is declining. If relative strength continues to weaken and momentum continues to accelerate on the downside, the element will eventually be pushed into the lower-left quadrant. These are the elements that are showing weak relative strength, that is, JdK RS-Ratio levels below 100 and the negative momentum continues to push them further down on the JdK RS-Ratio axis. These are the elements you want to be underweight or short in a portfolio.

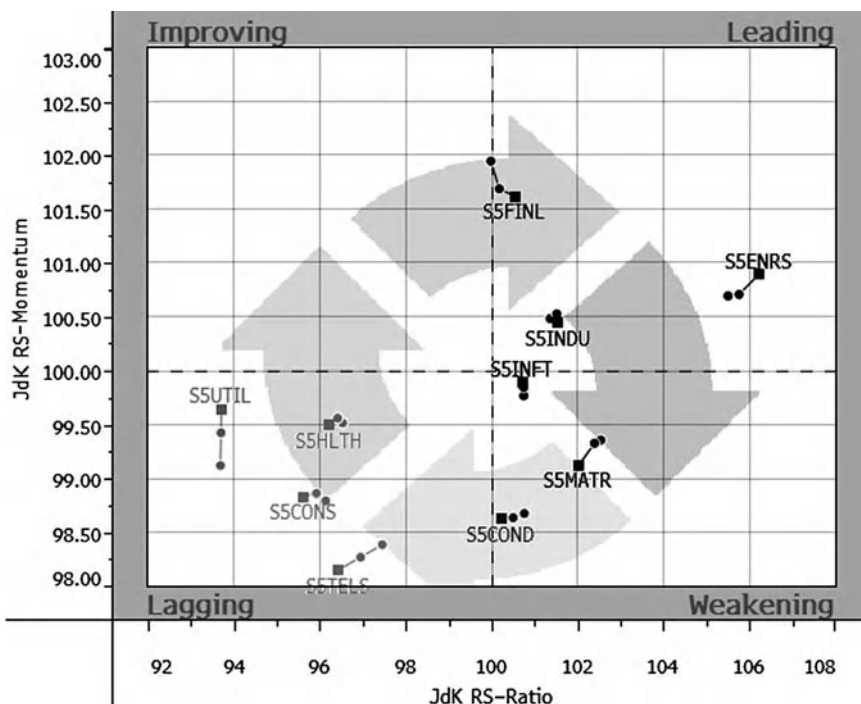
Just as all good things come to an end, also all bad things will eventually come to an end. At some stage the acceleration of the downward JdK RS-Momentum will level off and turn back up again. This is the moment at which an element will be pushed from the lower-left quadrant into the top-left quadrant. At that stage the JdK RS-Ratio line is still in negative territory but moving up already. When that improvement continues the element

FIGURE 2.17 Schematic Overview of Rotation inside the Scatter Plot

will be pushed into the top-right quadrant again, and rotation has come full circle.

The first time I saw this rotation in action was what Germans would call an *Aha Erlebnis* for me. Until then, I had often heard traders talking about sector-rotation but no one had ever been able to show me that sectors were actually rotating around a center/benchmark. With this tool I was now able to show people that markets actually do rotate, and that they do so in a clockwise fashion.

These pictures eventually became the Relative Rotation Graphs (RRGs) that I have been using in my research reports for institutional clients (available through our web sites) in various developing formats since 2005 and that have

FIGURE 2.18 RRG of 10 Economic Sectors (GICS Level I) of S&P 500 Index

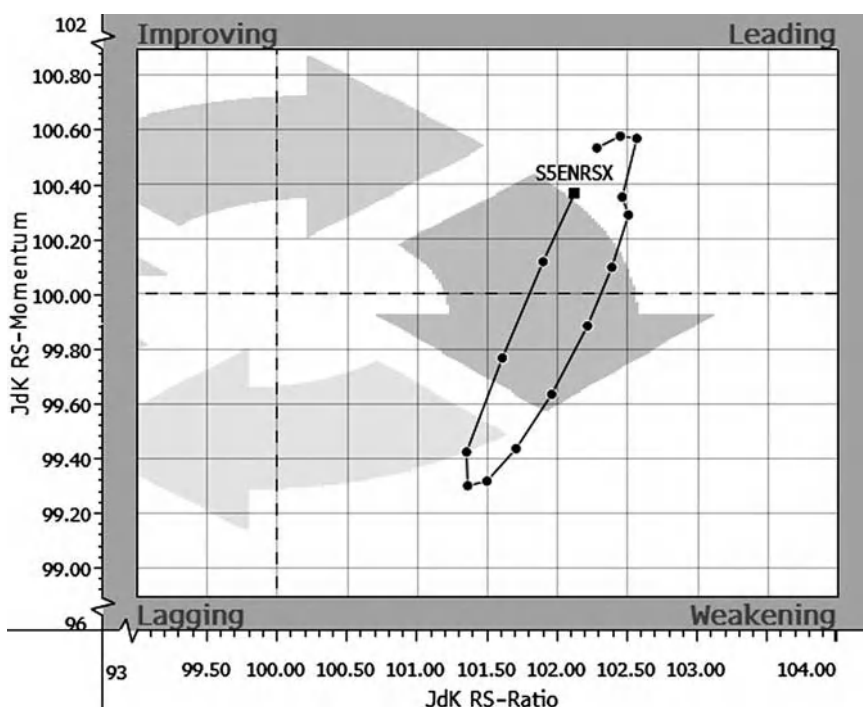
been available on the Bloomberg terminal since January 2011. So how are they going to help, and who are they going to help?

Relative Rotation Graphs

The picture in Figure 2.16 shows only a snapshot of the last observations of all sectors, similar to the ranking on JdK RS-Ratio we saw in Table 2.2. In order to get a clearer picture and to put things into perspective, some historical data needs to be added to the graph. This is shown in Figure 2.18.

This picture shows the 10 economic sectors according to the Global Industry Classification System (GICS) level I of the S&P 500 universe. In this case, however, three weeks of history have been added to every sector, creating a “trail” that makes it possible to gauge the direction and the pace of the movement. Depending on the number of elements displayed in the scatter plot, trails can be longer or shorter. With a lot of elements displayed, long tails will make the graph look like spaghetti and make it more or less unreadable.

FIGURE 2.19 RRG of S&P Energy Sector on a Daily Basis Showing Rotation in Positive Territory



Try to find a balance between the number of elements and the length of the tails. If you want to study the rotation of individual elements over a longer time period, it's best to show just one or two elements with a long tail (see Figure 2.19). If you want to see the relative interaction of all elements in the universe, then show all elements with a shorter tail. Relative Rotation Graphs (RRGs) are primarily a visualization tool. The biggest advantage of this type of visualization is that it shows the user the relative positions of all elements in a universe, not only against a benchmark but also vis-à-vis each other in *one* picture—the *big* picture in *one* picture, so to speak. In this way RRGs serve as a monitoring tool that investors can use to monitor their universe or their portfolio and determine whether their holdings are still on track to outperform their benchmark.

Anyone who is interested in the relative performance and positioning of elements in a universe can benefit from the RRG. A universe can be a number of sector indices compared to the broader market index, a number

of individual equities against a market (sector) index, but also a number of asset class indices (equities, bonds, real estate, etc.), or even a set of currencies vis-à-vis each other.

Let's start with an example of an equity portfolio manager who has to beat the S&P 500 index. As he realizes that his sector weightings will have a big impact on the overall performance of his portfolio, he checks the relative strength of the various sector indices against the S&P 500 index on a regular basis. He wants to be overweight in sectors with a strong relative strength and underweight in sectors with a weak relative strength vis-à-vis the broader market.

Instead of browsing through all the different sectors with a relative strength chart against the S&P 500, he could start with a look at a Relative Rotation Graph, similar to the one shown in Figure 2.18, which shows the 10 economic sectors of the S&P 500 index against the S&P 500 index.

At one glance we can see that Energy is the leading sector and that Financials just entered the top-right quadrant and looks likely to continue higher on the JdK RS-Ratio scale. Overweight or long positions in these two sectors make sense. The Industrials sector is inside the top-right quadrant, but shows little momentum, and Information Technology is just inside the bottom-right quadrant, but also displays hardly any movement over the past three weeks. Sectors, or elements in a universe, that move very close to the benchmark are unlikely to generate a strong out- or underperformance as they move in line with the benchmark. In a large universe, and therefore a crowded Relative Rotation Graph, one can safely ignore the elements that are moving in a small circle around the benchmark. Concentrate on the elements that are moving on the outskirts of the diagram: this is where the real moves take place.

It is also quickly apparent that Materials and Consumer Discretionary are heading toward the bottom-left quadrant and very likely to arrive there soon. So these are sectors to keep an eye on, and if overweight or long positions still exist, it is time to start reducing them.

In negative territory, the bottom-left quadrant, we find Utilities, Health Care, Consumer Staples, and Telecom Services. The latter three are without doubt candidates for underweight or short positions.

Utilities need some extra examination as over the past three weeks relative momentum has been picking up rapidly. When this happens at low (or high) JdK RS-Ratio levels, it can happen that the pickup of relative momentum is a temporary thing and that a rotation takes place at levels < 100 (or > 100) on the JdK RS-Ratio scale, that is, without crossing to the right or the left of the diagram. This means that the security is still leading but it took some time to consolidate its prior outperformance. An example of such a rotation is seen in Figure 2.19.

The use of RRG as described above is a good way to monitor the current holdings in a portfolio and provides a quick visual check of whether the over- and underweightings for specific sectors are still valid and justifiable.

RRG can also be used for pair-trade idea generation. The most obvious strategy is to be or to go long the sectors or elements that are crossing into or have just crossed into the top-right quadrant, and to be or to go short on the sectors or elements that are crossing or have just crossed into the bottom-left quadrant. These moves are considered to bear the least amount of risk, as the relative moves of the sectors at hand have already been confirmed. In the top-right quadrant are the sectors that are showing positive relative strength (high JdK RS-Ratio) with a positive relative momentum (high JdK RS-Momentum), indicating that relative strength is still getting stronger. The bottom-left quadrant are the sectors that are showing weak relative strength with relative momentum accelerating to the downside, indicating that relative strength is still getting weaker. An example of such a strategy is shown in Figure 2.20.

FIGURE 2.20 RRG of Energy and Utilities with a 17-Week Trail

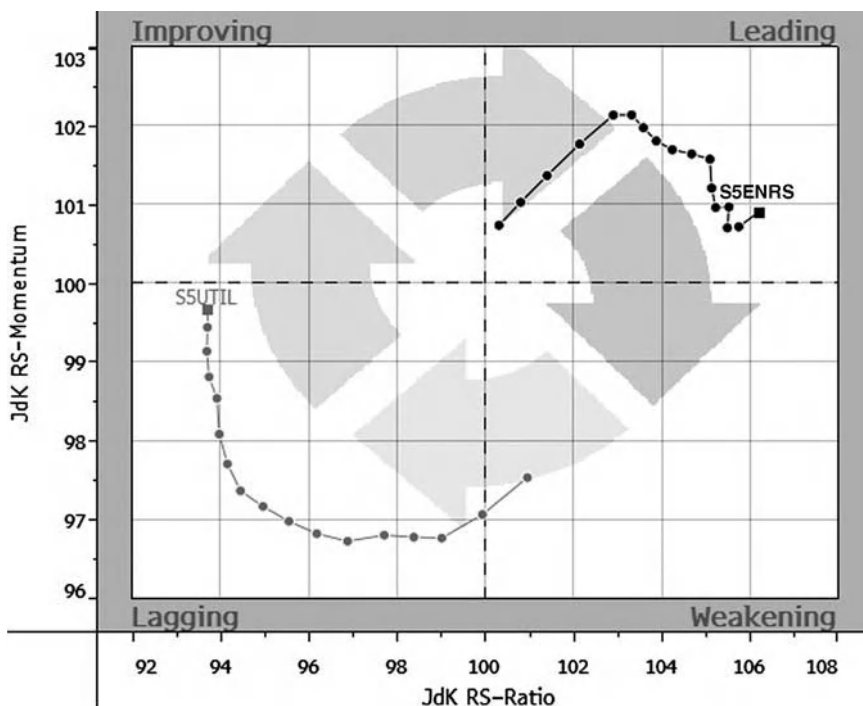
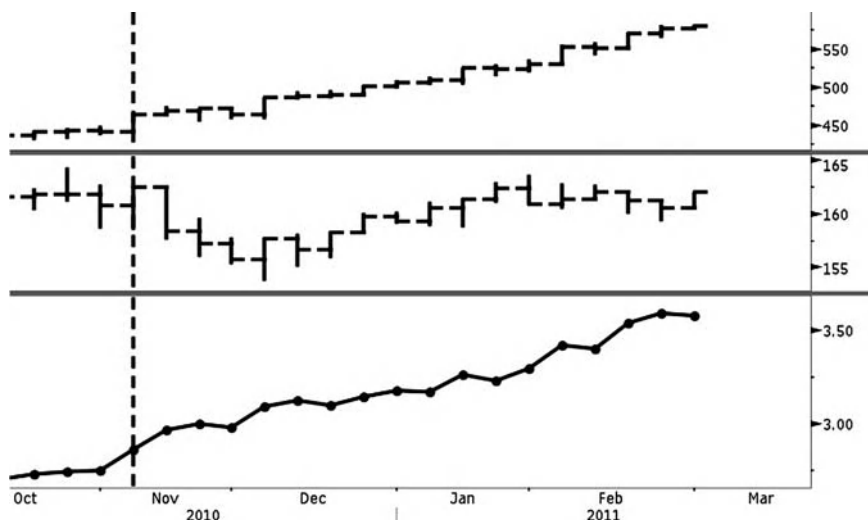
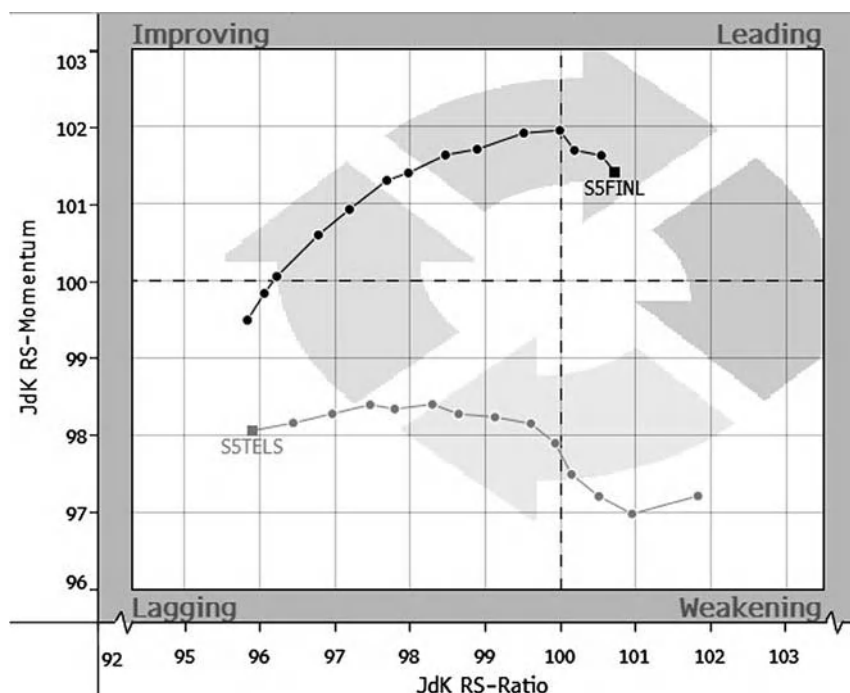


FIGURE 2.21 Bar Charts of Energy and Utilities with RS Line

This RRG shows only two sectors of the S&P universe with a 17-week trail. At the beginning of the trail (the most recent point of the series is the bigger square marker with the label on top and therefore the beginning is the opposite end) the Energy sector (S5ENRS) had just entered the top-right quadrant and could be expected to show further outperformance versus the S&P 500 index. At the same time the Utilities sector was on the verge of crossing into the bottom-left quadrant and therefore very likely to show an underperformance versus the S&P 500 going forward. The idea to be captured here is to overweight or go long the Energy sector and underweight or go short the Utilities sector. When looking at a RRG, conclusions like this are easily reached and do not require browsing through numerous charts. To get a better grasp of how the paths of these two trails translate back to a “normal” RS-line on a traditional chart, see Figure 2.21.

The top pane shows the weekly bar chart of the Energy sector, the middle pane shows the weekly bar chart of the Utilities sector, and the bottom pane is the RS line of Energy versus Utilities. The dashed vertical line shows the date mark of the beginning of the trail in the RRG in Figure 2.19.

At the beginning of the trail (11/5/2010) the Energy index traded at 465.12 and the Utilities at 162.54. At the end of the trail (2/25/11) Energy was at 577.37, a 24.1 percent gain, while Utilities were at 160.58, a 1.2 percent decline. This results in a 25.3 percent outperformance of Energy over Utilities in this period. As the trigger in this case was the entry of the top-right and

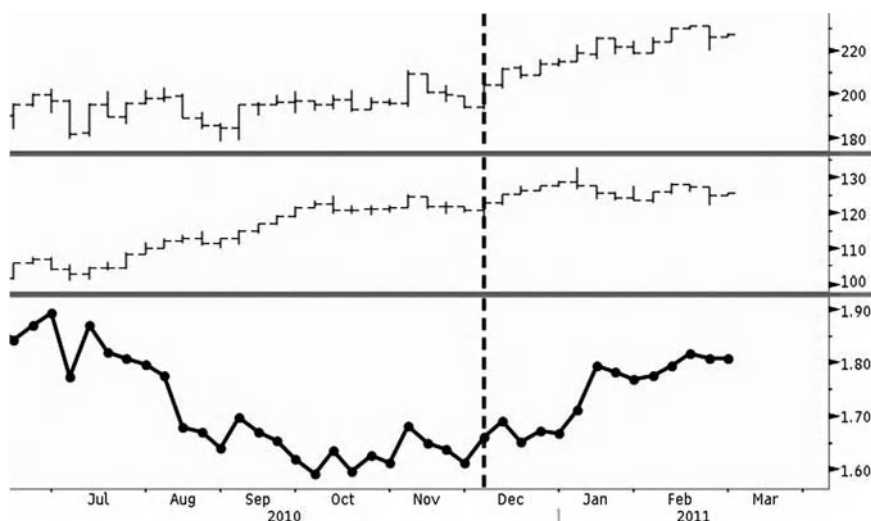
FIGURE 2.22 RRG of Financials and Telecom Services with a 14-Week Trail

the bottom-left quadrant this can be seen as a relatively “safe” strategy as the JdK RS-Ratio line at that time is confirmed above the 100-level.

As the calculation of the JdK RS-Ratio line involves the use of moving averages, by definition some lag is introduced. This means that sectors have already gone through a decent move before entering into the top-right or the bottom-left quadrant. More adventurous or more aggressive investors could therefore also look for sectors in, or very close to, the top-left and bottom-right quadrants for trading opportunities, assuming that a rotation will continue in the expected direction. Such an example is shown in Figure 2.22.

At the beginning of the trail the Financials sector is still in the bottom-left quadrant but heading toward, and nearly in, the top-left quadrant. The Telecom Services sector at the same time is well inside the bottom-right quadrant and heading for the bottom-left quadrant. Assuming a continuation of the rotation, investors or traders could start going long or overweight on Financials and short or underweight on Telecom Services.

In Figure 2.23 the 14-period trail is displayed in a regular chart containing the weekly bar chart of Financials in the top pane, Telecom Services in the

FIGURE 2.23 Bar Charts of Financials and Telecom Services with RS Line

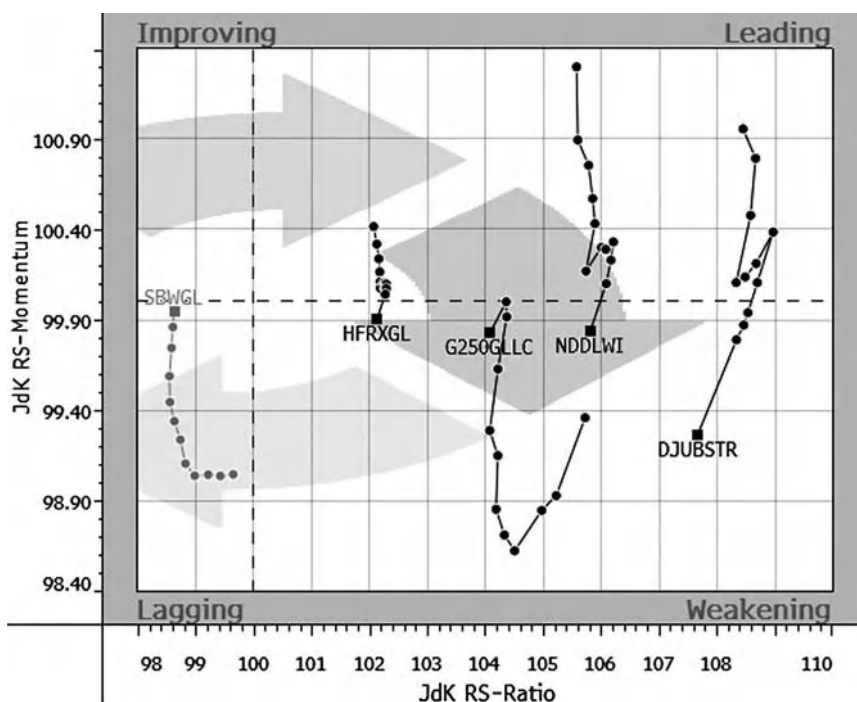
middle pane, and the RS line of Financials to Telecoms in the bottom pane. The dashed vertical line marks the beginning of the trails in the RRG in Figure 2.22.

At the beginning of the trail (12/3/2010) Financials were trading at 203.97 and Telecom Services at 122.75. At the ends of the trail so far (2/25/2011), Financials were at 225.73 and Telecom Services at 124.84. This represents a gain of 10.3 percent for Financials and 1.7 percent for Telecom Services, that is, an outperformance of 8.6 percent at a point in time when Financials have just pushed into the top-right quadrant while Telecom Services are heading deeper into the bottom-left quadrant. The relative trend is therefore fully intact and may be expected to continue.

This type of analysis and idea generation using RRGs can be used in a lot of different markets, on a lot of different levels, and in all timeframes. Strategists and investment committees, for example, can use Relative Rotation Graphs to help determine dynamic asset allocations using a universe of indices representing various asset classes vis-à-vis some portfolio benchmark. Such an example is shown in Figure 2.24.

This RRG shows a number of asset class indices (all total return and all in local currency) against a three-month cash (deposit) index.

SBWGL: Citigroup World Government Bond Index all maturities Local
NDDLWI: MSCI World Index Daily Net TR Local

FIGURE 2.24 X RRG of Asset Classes against a Cash Index

G250GLLC: GPR 250 Property Shares Index World Local

DJUBSTR: Dow Jones UBS Commodity TR

HFRXGL: HFRX Global Hedge Fund Index

The RRG shows that “risk assets” are still very strong, with high readings on the JdK RS-Ratio scale, but they are all losing relative momentum, with declining JdK RS-Momentum values, while bonds are picking up relative momentum. So far at this stage risk assets are still leading but as all are in the bottom-right quadrant, a close eye should be kept on any further deterioration that could warrant a shift of money out of risk assets into nonrisk assets (i.e., bonds and deposits). Of course, an RRG showing regional equity indices against the MSCI world equity index can then give clues as to which regions to prefer over others for the money that still remains invested in equity markets, assuming allocation to equities will not go down to zero. Another step down the decision tree can then be to draw an RRG of sector indices against the regional benchmark to determine which sectors to prefer, and so forth.

Conclusion

The application of Relative Strength analysis through the use of RRGs can aid investors at every level of the decision tree, from asset allocation to selection of individual equities. Usually the more active traders will use shorter timeframes, while longer-term-oriented market participants will want to use weekly or even monthly timeframes. Fixed-income investors can use RRGs to determine which type (government or corporate), region, or credit-level to pick, and at which part of the curve. Forex traders can use an RRG showing a number of currencies against a base currency to generate trade ideas. All this can even be done on an intraday basis, for example, hourly or in 10-minute periods. If you are connected to a real-time feed, this will generate a very dynamic picture, showing real-time rotation during the course of the trading day.

Although RRGs are primarily used as a visualization tool, that does not rule out using this method for more quantitative and rule-based approaches to markets. We are conducting further research into these possibilities and are actively designing trading strategies and tailor-made visualizations for various types of clients.

CHAPTER 3

Applying Seasonality and Erlanger Studies

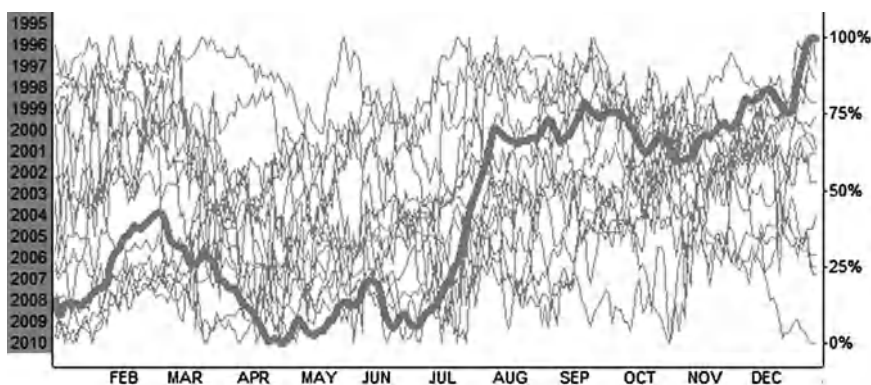
Philip B. Erlanger, CMT

Phil Erlanger Research

Seasonality is a very unique indicator. It is a measure derived from historical price action extrapolated into the future. This means that its signals are known ahead of time—in many cases, substantially ahead of time.

All financial instruments have some seasonal tendencies. These tendencies are derived from a plethora of fundamental factors, known and unknown, that recur at specific time periods. A seasonal cycle is a representation of the directional tendencies of a security or index at specific times. In the following discussion, the focus is on seasonal cycles based on the calendar year.

All the thin lines in Figure 3.1 look like random streams of data. They are, in fact, the component years of a 15-year history of a stock superimposed one on top of another. The result looks more like spaghetti than anything that could be useful for investors. However, through the magic of compositing algorithms, those thin lines turn into one line (the thick one) that represents 15 years of action, aligned with the calendar year. Once this little miracle is achieved, reams of statistical data are made visible, which makes the application of seasonal analysis effective. The first portion of this chapter explores this in detail.

FIGURE 3.1 Component Years That Comprise a Seasonal Cycle

Source: Erlanger Chart Room.

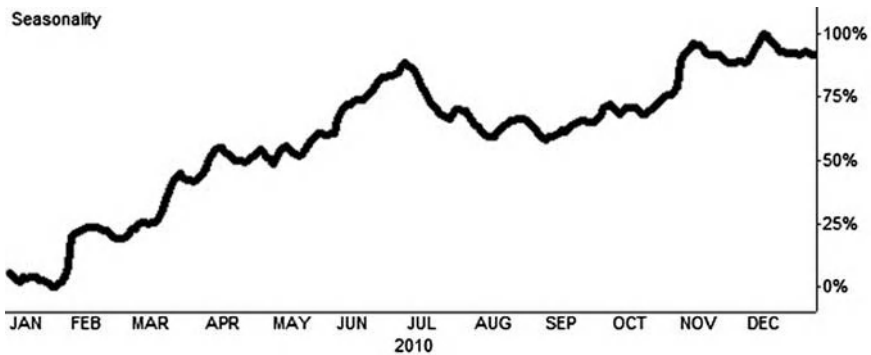
Testing for a Valid Seasonal Cycle

The act of compositing historical data to create seasonal cycles is a process that has been used for decades, going back at least as far as the cycles work pioneered by Edward R. Dewey that formally began in 1941.

Seasonal cycles are cycles that tend to move in similar fashions at specific times. They reflect fundamental factors that may or may not be known, but they occur at regular intervals relative to the calendar year. This is an extraordinary statement, because the fundamental proof of such seasonal factors has been elusive. Moreover, given that the economic factors that affect individual stocks, industries, and the overall economy are diverse, disparate, and nonlinear, the identification of seasonal factors seems problematic. How do you know that a seasonal cycle exists if you can't see why it exists? Taking a composite of data as shown in Figure 3.1 is an insufficient process. One can make a great-looking seasonal cycle out of random data, but there is no reliability as that cycle is projected into the future—that is, it is invalid.

The truth about seasonal cycles is that the validity of the seasonal pattern can vary greatly from one security to another. Moreover, a great-looking seasonal cycle can be made from random data. Simply compositing the data into a cycle as displayed in Figure 3.1 is no guarantee that any seasonal influence is being measured. Phil Erlanger Research has introduced the concept of validating seasonal cycles through the process of testing exogenous datasets. This process is called the Cycle-R.

The idea behind validating a seasonal cycle is simple. Seasonal cycles are valid if they reflect a meaningful seasonal influence. The rub is that,

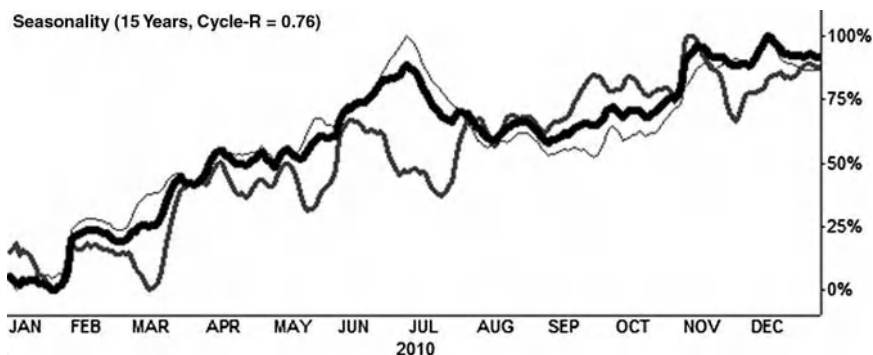
FIGURE 3.2 Typical Seasonal Cycle

Source: Erlanger Chart Room.

for some stocks, there are no meaningful seasonal influences. Cycle-R is a statistical correlation between seasonal cycles of a particular security derived from exogenous portions of that security's historical price data.

In Figure 3.2, a seasonal cycle has been created from a typical period of historical data that spans the most recent complete 15 years of price data for Starbucks (SBUX). This cycle was created on New Year's Day, January 1, 2010. In its standard form, it is etched in stone for the entire year of 2010 (there is an optimized form that will be discussed later in this chapter). The unique nature of this indicator is that it is plotted so far in advance. But is this a valid seasonal cycle? Is there a true seasonal influence being measured by this pattern?

In Figure 3.3 there are additional lines plotted around the seasonal cycle. These additional lines are themselves seasonal cycles. The thin seasonal cycle is derived from the first half of the 15-year period. The thicker additional line is a seasonal cycle derived from the second half of the 15-year period. Both these additional seasonal cycles are therefore derived from exogenous data—totally separate portions of the security's historical price action. The Cycle-R is the correlation between these two seasonal cycles. Correlation statistics are simple to read. Ranging from -1 to 1 , a value of 1 is a perfect correlation, a value of 0 is no correlation, and -1 is a perfectly inverse correlation. If the two seasonal cycles derived from exogenous data are significantly correlated, then there must be some measure of true seasonality that exists throughout the data set. For Starbucks in the 15 years prior to 2010, the Cycle-R statistic is 0.76 —a high degree of correlation and, therefore, proof that the seasonal cycle is a valid one.

FIGURE 3.3 Testing for the Validity of the Seasonal Cycle

Source: Erlanger Chart Room.

As it turned out, Starbucks did move through 2010 in a fairly close pattern to its seasonal cycle. The lows in the seasonal cycle of late January and late August were closely matched to the lows in the actual price action (see Figure 3.4). The weak period suggested by the seasonal cycle spanned from late June through late August, and this turned out to be the weakest period for Starbucks in 2010.

It is important to note that seasonal cycles do not cause movements in price action. The cycle simply reflects tendencies that are often a product of fundamental influences applied at regular intervals or specific time periods. There is always a possibility that other exogenous factors can come into play and swamp the influence of regular seasonal factors. Therefore, it is important to measure how well a stock is following its seasonal cycle over time. Figure 3.4 includes an additional statistic called 2010 R. This is another correlation statistic that measures how well the current year's price action (in this case, 2010) is tracking a security's seasonal cycle. In the case of Starbucks in 2010, the correlation is a high 0.80, which indicates that the stock has closely followed its seasonal cycle. This statistic is updated throughout the entire calendar year on a daily basis.

Optimizing for Greater Validity

The determination of a Cycle-R statistic as a test of validity can be adjusted by limiting the look-back period. In Figure 3.3 we used the standard look-back length of 15 years (although a shorter timeframe can also be used). The same test of validity can be performed on any look-back period from

FIGURE 3.4 Key Turning Points in Starbucks Seasonal Cycle

Source: Erlanger Chart Room.

as long as 15 years or as short as only two years. A two-year sample is not particularly reliable because of the short time span, but the Erlanger Chart Room program (powered by Bloomberg) can execute the Cycle-R process on any user-selected look-back range of 15 years or less. Of the possible set of look-back periods, slightly different seasonal cycles are created, each with its own particular Cycle-R statistic as a test of validity.

The key to optimizing the seasonal cycle is to select the look-back period that maximizes the Cycle-R statistic. The largest Cycle-R statistic is so measured because the exogenous seasonal cycles are most closely correlated, thereby yielding the most valid seasonal cycle.

In Figure 3.5, American Express is shown with its standard seasonal cycle derived from a span of the prior 15 years. The Cycle-R test for validity is respectable with a value of 0.54. The key point to this pattern is that the seasonal cycle suggests that the high period for the year occurs in late August, and that the strength in price remains near its high at year's end.

FIGURE 3.5 American Express Standard Seasonal Cycle

Source: Erlanger Chart Room.

In Figure 3.6, American Express is shown with its optimized seasonal cycle derived from a smaller span of the prior five years. This seasonal cycle represents a much more “local” seasonal pattern. It is entirely possible that seasonal factors can change as fundamentals change, or be transitory on a multiyear scale, again as fundamentals change. For example, for American Express, a financial company, a change in taxation could shift seasonal factors. The Cycle-R test for validity is now a value of 0.66—a more valid statistic than generated by the standard correlation test over the span of the prior 15 years. Note that in the optimized seasonal cycle, the pattern suggests that the high period for the year occurs in late April/early May, and that the strength falls off at year’s end. Remember that both seasonal cycles were constructed on January 1, 2010, and therefore the actual price action of 2010 is not a factor in their shape. The 2010 peak in price for American Express occurred in late April, and though price rallied in December, it fell off considerably, even as the overall stock market rose to higher reaction highs.

FIGURE 3.6 American Express Optimized Seasonal Cycle

Source: Erlanger Chart Room.

Is the optimized seasonal cycle “better”? Not necessarily. Because the optimized is a more local statistic, it is a trade-off in terms of offering a pattern that is less “time tested.” Therefore, we suggest that both seasonal patterns are of use. Moreover, if they both suggest a strong seasonal tendency at the same specific period in the current calendar year, more attention should be paid. In the standard and optimized seasonal cycles (Figures 3.5 and 3.6), the low seasonal point was in March 2010, with the strongest jump in both cycles occurring soon thereafter. The largest jump in American Express during 2010 occurred in this period.

Finding the Most Aggressive Parts of a Cycle

A more intuitive strategy when using seasonal cycles is to focus on the most rapidly shifting portions of the cycle. We call these *long* or *short zones*.

FIGURE 3.7 Strong and Weak Seasonal Zones

Source: Erlanger Chart Room.

The Erlanger Chart Room program can highlight the strongest and weakest portions of the seasonal cycle, identifying those as “long” and “short” zones respectively. In Figure 3.7, the long zones are the four strongest portions of 14 days or more that exist in the cycle. These long zones are the shaded areas above the cycle line itself. The weakest short zones are the shaded areas just below the cycle line itself. These can be colored by the user, and the parameters for minimum days per zone and the number of zones can be user selected. The idea is to focus on the meaty portions of the seasonal cycle.

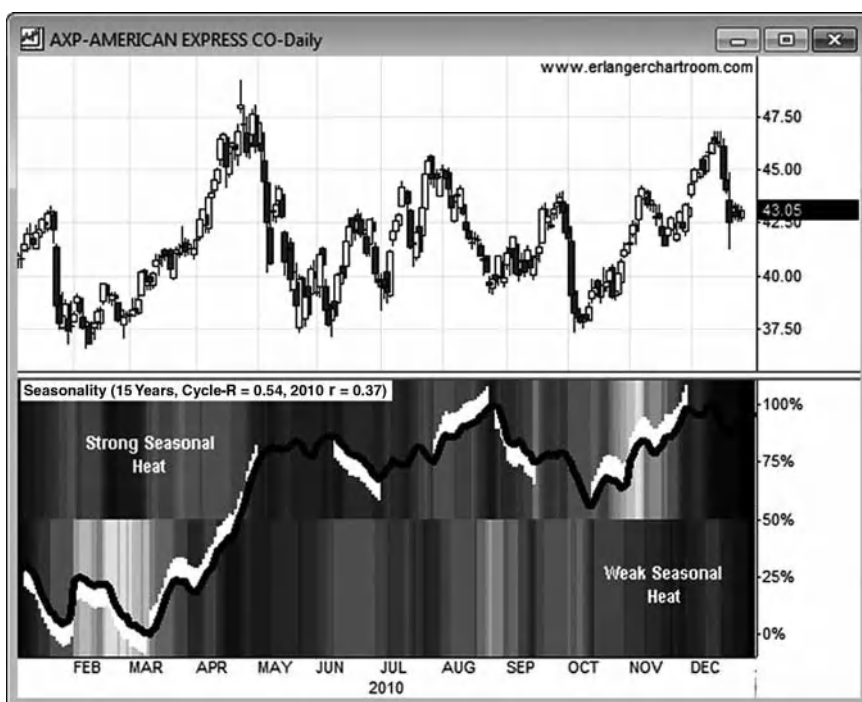
Testing for a Consistent Cycle

So far in this discussion, we have shown how seasonal cycles are created every New Year’s Day, and how they can be tested for validity, optimized, and carved into strong or weak zones to more easily act on the meatiest parts of the cycle. However, that’s not the end of the story!

Every New Year's Day, a fresh seasonal cycle is created by adding the most recently completed year of price data. If there was already 15 years of history, the oldest year is removed from the composition of the seasonal cycle. Therefore, for every preceding year a different seasonal cycle existed. Through the magic of computer processing, it is possible to perform a statistical test for "consistency" for each of the current cycle's seasonal zones. In this situation consistency is a measure of how frequently a current seasonal zone (either long or short) repeated as such in all the prior seasonal cycles over the past 15 years (or in the case of optimized seasonal cycles, over the span of years equivalent to the optimized look-back period). We call this *seasonal heat*.

In Figure 3.8, there are two portions in the seasonal heat area—the horizontal portion above the 50 percent level is a representation of *strong seasonal heat* while the horizontal portion below the 50 percent level is a representation of *weak seasonal heat*. The lighter the background in the strong

FIGURE 3.8 Seasonal Heat Is Expressed by Background Coloring



Source: Erlanger Chart Room.

seasonal heat portion, the more times a strong seasonal zone appeared at that specific time of the year in past seasonal cycles. The lighter the background in the weak seasonal heat portion, the more times a weak seasonal zone appeared at that specific time of the year in past seasonal cycles. Figure 3.8 is a black-and-white representation of what is colored shading in the Erlanger Chart Room program; typically the strong seasonal heat is colored green. The brightest green (the lighter shading above 50% in Figure 3.8, which is a black & white version) shows the most consistent period in terms of prior occurrences of strong seasonal zones; the weak seasonal heat is colored red, with the brightest red (the lighter shading below 50% in Figure 3.8, which is a black-and-white version) illustrating the most consistent period in terms of prior occurrences of weak seasonal zones.

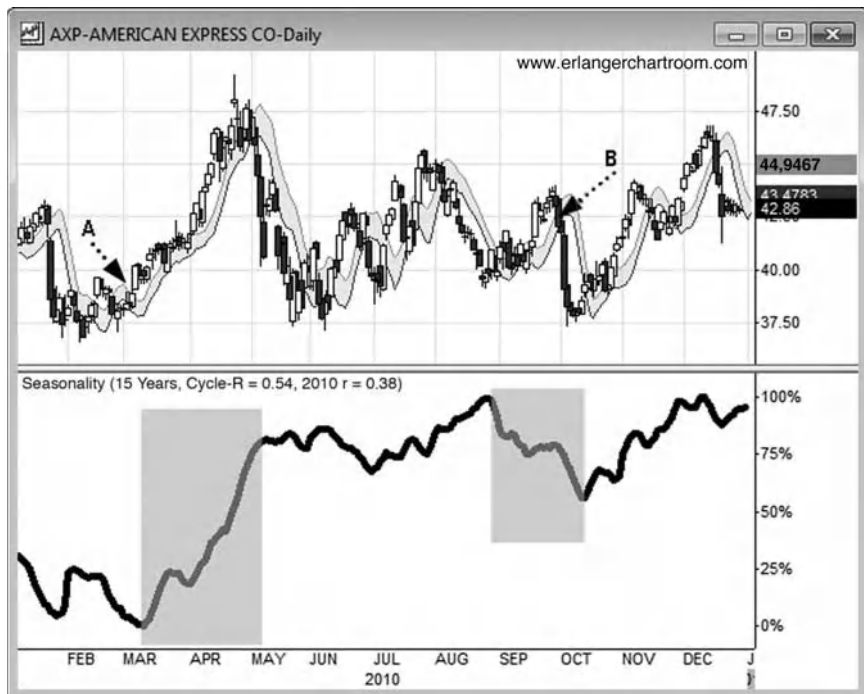
These seasonal heat light areas help the user focus in on the more consistent portions of the seasonal cycle. A seasonal zone that has dark seasonal heat is less reliable.

Applying Cycles as a Strategy

The complexities of investment and trading decisions can be distilled to a technical process of determining bias, uncovering setup situations, and acting on triggers in the direction of the setup and bias.

Setup situations are technical patterns that suggest that a change in price trend is imminent. Seasonality is a setup indicator. As stated previously, seasonality does not cause price to move a certain way. It simply reflects tendencies based on known or unknown fundamental factors. There can be times when price action deviates from seasonal cycles, most often because of exogenous factors that are of greater influence than the normal seasonal influences. For these reasons, it is wise to act on shifts in the seasonal patterns only if a price trigger indicates a move in the new direction of seasonality.

The chart in Figure 3.9 shows the daily DMA (displaced moving average) channel with the seasonal cycle for American Express. The shaded areas of the seasonal cycle point to the two most rapid changes in the seasonal cycle for the year. Remember, we can see this seasonal pattern for the entire year at the beginning of the year. The strategy is to wait for the beginning of each seasonal cycle, and then trigger into a trade using the daily DMA channel. The first shaded area in Figure 3.9 highlights a strong seasonal period. Just days before this strong seasonal period began, the price of American Express closed above its DMA channel (see arrow A in Figure 3.9) on March 4, 2010, at a price of \$38.89. At the actual low in the seasonal cycle the price maintained its

FIGURE 3.9 Using the DMA Channel as a Trigger after a Seasonal Setup

Source: Erlanger Chart Room.

posture above the DMA channel at \$39.72 on March 10, 2010. The earlier price could have been used as a speculative entry point because it was just days before the upturn in the seasonal cycle, but let's stick to the plan and use the March 10 entry of \$39.72. In this case the price action continued to trade above the DMA channel until May 4, 2010, when it closed below the DMA channel at a price of \$45.86 for a gain of 15.46 percent in just 38 trading days.

The second shaded area in Figure 3.9 highlights the weakest season period for American Express. This weak shaded area began on August 25, 2010. Instead of falling, however, the price of American Express rose above its DMA channel for several weeks, finally triggering a short trade (see arrow B in Figure 3.9) by closing below its DMA channel on September 30, 2010, at a price of \$42.30. The short trade was closed out by the move above the DMA channel at \$39.09 on October 15, 2010, for a gain of 7.00 percent in just 11 trading days.

TABLE 3.1 Daily DMA Channel Signals for the Dow 30 Stocks during 2010

Symbol	Last Close	Winners	Losers	Avg Winner	Avg Loser
AA	15.39	9	12	7.99%	-3.58%
AXP	42.92	8	12	7.00%	-4.92%
BA	65.26	7	14	7.48%	-3.24%
BAC	13.34	7	10	8.75%	-2.64%
CAT	93.66	9	6	7.88%	-3.80%
CSCO	20.23	10	11	3.92%	-4.81%
CVX	91.25	8	9	6.77%	-2.25%
DD	49.88	6	9	6.38%	-2.13%
DIS	37.51	7	13	4.38%	-3.13%
GE	18.29	7	16	8.49%	-2.78%
HD	35.06	4	13	13.83%	-3.60%
HPQ	42.1	7	19	6.77%	-2.92%
IBM	146.76	8	19	1.98%	-2.23%
INTC	21.03	8	10	5.94%	-4.24%
JNJ	61.85	8	13	2.18%	-1.28%
JPM	42.42	9	12	5.26%	-3.19%
KFT	31.51	8	16	2.12%	-1.69%
KO	65.77	6	18	3.59%	-2.31%
MCD	76.76	7	16	2.27%	-1.86%
MMM	86.3	8	9	3.50%	-2.01%
MRK	36.04	9	18	2.88%	-2.11%
MSFT	27.91	11	8	4.98%	-3.21%
PFE	17.51	7	14	4.89%	-2.05%
PG	64.33	7	20	1.60%	-1.74%
T	29.38	8	9	3.89%	-1.77%
TRV	55.71	6	19	2.49%	-2.25%
UTX	78.72	8	9	6.18%	-1.51%
VZ	35.78	8	6	7.08%	-1.29%
WMT	53.93	6	20	2.04%	-2.08%

TABLE 3.1 (Continued)

Symbol	Last Close	Winners	Losers	Avg Winner	Avg Loser
XOM	73.12	9	10	4.04%	-1.94%
	Total:	230	390		
	Average:	8	13	5.22%	-2.62%
		Average Win/Average Loss Ratio:			1.99
		Win/Loss ratio:			0.59
		Return Per Trade:			0.29%

Source: Erlanger Chart Room.

By incorporating the seasonal cycle as a setup and the daily DMA channel as price action trigger, a trader would have accomplished two things: (1) improving the chances of success, and (2) taking less heat in the price action in the form of a negative excursion.

The overall strategy has four basic components: bias, setups, triggers, and monitoring. Bias is used to determine the big-picture trend, and indicates which side of a market to trade—long or short. As mentioned, setups are technical patterns that suggest a change in price trend is imminent—a “get ready to trade” type of indication. Triggers are indicators used to actually execute opening and closing trades. To assess the effectiveness of a typical plan using seasonality as a setup trigger, we examine the process in reverse, starting with the trigger indicator.

Trigger indicators get us into and out of the trade. The problem with most strategies is that they focus only on trigger indicators. Too much effort has focused on finding the Holy Grail, that technical indicator that, if followed, will eliminate risk and reap steady rewards. The sad truth is that such indicators are rarely possible, especially on a daily basis. Triggers should be considered only as tools that indicate a near-term change in direction. They do not, by themselves, provide a complete trading strategy. To illustrate this, we are going to examine the bias, setups, and triggers process in reverse by first detailing all the daily trigger signals generated by the daily DMA channel for all 30 Dow Jones Industrial stocks during the entire year of 2010.

As Table 3.1 shows, though the average gain is almost twice the average loss, the win/loss ratio is only 0.59/1, which yields a paltry 0.29 percent average gain per trade—hardly enough to pay for commissions. This does not

TABLE 3.2 Daily DMA Channel Signals in the Direction of Seasonal Zones for the Dow 30 Stocks during 2010

Symbol	Strong Zone Net %	SZ P/L	Weak Zone Net %	WZ P/L	Total P/L
AA	3.91%	3.91%	−12.50%	12.50%	16.41%
AXP	9.98%	9.98%	no trade	—	9.98%
BA	no trade	—	no trade	—	—
BAC	10.12%	10.12%	4.34%	−4.34%	5.78%
CAT	13.88%	13.88%	−11.06%	11.06%	24.94%
CSCO	−13.45%	−13.45%	no trade	—	−13.45%
CVX	7.98%	7.98%	−6.60%	6.60%	14.58%
DD	0.47%	0.47%	1.42%	−1.42%	−0.95%
DIS	14.93%	14.93%	−0.77%	0.77%	15.70%
GE	14.94%	14.94%	5.18%	−5.18%	9.75%
HD	14.07%	14.07%	4.88%	−4.88%	9.19%
HPQ	−4.53%	−4.53%	5.41%	−5.41%	−9.93%
IBM	−6.69%	−6.69%	no trade	—	−6.69%
INTC	8.65%	8.65%	−0.75%	0.75%	9.40%
JNJ	−0.81%	−0.81%	−1.34%	1.34%	0.53%
JPM	no trade	—	no trade	—	—
KFT	−2.64%	−2.64%	0.92%	−0.92%	−3.56%
KO	6.50%	6.50%	2.97%	−2.97%	3.53%
MCD	2.43%	2.43%	0.55%	−0.55%	1.88%
MMM	3.27%	3.27%	−2.70%	2.70%	5.96%
MRK	−3.15%	−3.15%	3.49%	−3.49%	−6.64%
MSFT	7.45%	7.45%	0.63%	−0.63%	6.82%
PFE	−2.22%	−2.22%	2.39%	−2.39%	−4.61%
PG	2.44%	2.44%	no trade	—	2.44%
T	2.95%	2.95%	−9.49%	9.49%	12.44%
TRV	2.47%	2.47%	2.86%	−2.86%	−0.38%
UTX	0.94%	0.94%	2.71%	−2.71%	−1.77%
VZ	no trade	—	1.81%	−1.81%	−1.81%

TABLE 3.2 (Continued)

Symbol	Strong Zone Net %	SZ P/L	Weak Zone Net %	WZ P/L	Total P/L
WMT	3.56%	3.56%	no trade	—	3.56%
XOM	-3.08%	-3.08%	2.08%	-2.08%	-5.16%
	Average:	3.50%		0.15%	3.50%
	Median:	2.95%		-1.42%	2.98%
				Wins:	17
				Losses:	11
				Win/Loss Ratio:	1.55
				Average Win:	8.99%
				Average Loss:	-5.00%
				Average Win/Average Loss Ratio:	1.80
				Return Per Trade:	3.50%

Source: Erlanger Chart Room.

mean that the daily DMA channel is of no use as a trigger tool. It simply means that at daily intervals, the price action chops back and forth too many times relative to the times it travels along an extended trend. After all, the objective is to capture substantial trends while eliminating the unprofitable chops. The nature of the DMA channel on a daily basis is that it does signal the beginning of those profitable, “meaty” trends, but it also signals the beginning of the chops as well. The trick is to avoid chops while retaining longer trends. To accomplish this task, we will look at the sharpest strong and weak seasonal period for each of the Dow 30 Industrials.

In Table 3.2 we show daily DMA channel trades that trigger during a strong or weak seasonal zone. By this one step of incorporating a setup indicator, our win/loss ratio improves from 0.59/1 to 1.55/1 while the average win/average loss ratio is little changed. Most important, the return per trade improves from 0.29 percent to 3.50 percent. There are more steps that can be taken that logically focus on “meaty” trends.

In our discussion of seasonal cycles, we tested for validity by calculating the Cycle-R statistic for a particular security. If we eliminate those stocks of the Dow 30 that have a Cycle-R less than zero, we get the results shown in Table 3.3. The win/loss ratio jumps from 1.55/1 to 2.50/1, while the return

TABLE 3.3 Daily DMA Channel Signals in the Direction of Seasonal Zones for the Dow 30 Stocks with Valid Cycle-R during 2010

Symbol	Strong Zone Net %	SZ P/L	Weak Zone Net %	WZ P/L	Total P/L
AA	3.91%	3.91%	-12.50%	12.50%	16.41%
AXP	9.98%	9.98%	no trade	—	9.98%
BAC	10.12%	10.12%	4.34%	-4.34%	5.78%
CAT	13.88%	13.88%	-11.06%	11.06%	24.94%
CSCO	-13.45%	-13.45%	—	—	-13.45%
CVX	7.98%	7.98%	-6.60%	6.60%	14.58%
DD	0.47%	0.47%	1.42%	-1.42%	-0.95%
GE	14.94%	14.94%	5.18%	-5.18%	9.75%
HD	14.07%	14.07%	4.88%	-4.88%	9.19%
IBM	-6.69%	-6.69%	no trade	—	-6.69%
INTC	8.65%	8.65%	-0.75%	0.75%	9.40%
JNJ	-0.81%	-0.81%	-1.34%	1.34%	0.53%
KO	6.50%	6.50%	2.97%	-2.97%	3.53%
MMM	3.27%	3.27%	-2.70%	2.70%	5.96%
MSFT	7.45%	7.45%	0.63%	-0.63%	6.82%
PG	2.44%	2.44%	no trade	—	2.44%
T	2.95%	2.95%	-9.49%	9.49%	12.44%
TRV	2.47%	2.47%	2.86%	-2.86%	-0.38%
UTX	0.94%	0.94%	2.71%	-2.71%	-1.77%
WMT	3.56%	3.56%	no trade	—	3.56%
XOM	-3.08%	-3.08%	2.08%	-2.08%	-5.16%
Average:		4.26%		1.08%	5.09%
Median:		3.56%		-1.03%	5.78%
Wins:					15
Losses:					6
Win/Loss Ratio:					2.50
Average Win:					9.02%
Average Loss:					-4.73%
Average Win/Average Loss Ratio:					1.91
Return Per Trade:					5.09%

Source: Erlanger Chart Room.

per trade improves from 3.50 percent to 5.09 percent. We can improve the numbers further by eliminating low beta stocks.

Beta is a common measure of sensitivity of a stock to the direction (either up or down) of the overall market. Typically the overall market index used in calculating beta is the S&P 500 index. A beta of 1 describes a stock that matches the percentage moves of the S&P 500. A beta of 1.3 describes a stock that is overly sensitive to the market direction—if the market was up 10 percent, that stock with a beta of 1.3 should rise 13 percent. If the stock had a beta of 0.6, it would tend to only rise 6 percent relative to a 10 percent jump in the market. In Table 3.4, we have eliminated all Dow 30 stocks that have a beta less than 1. The actual win/loss ratio dipped a bit from 2.50 to 2.33, but the average win/average loss ratio rose from 1.91/1 to 2.20/1. Moreover, the return per trade rose from 5.09 percent to 6.69 percent.

Determining bias is a step that is often misunderstood. The stock markets tend to move in one direction or another on a big-picture basis. The idea is to take trades only in sync with the larger market trend underway. Bias indicators are primarily set to intervals larger than those used to trigger in and out of trades. If daily data is used for triggers, weekly or monthly data are typically used for the determination of bias. In our demonstration we use the monthly DMA channel as the bias indicator.

In Table 3.5 only trades taken in sync with a stock's big-picture bias are taken. We use the monthly DMA channel. This results in a jump in win/loss ratio from 2.33/1 to 7/1. Average win/average loss jumps from 2.20/1 to 3.26/1. The return per trade rose from 6.69 to 7.40 percent.

By using the strategy of bias, setups (using the seasonal zones) and triggers, we have demonstrated the added value of using seasonality as a setup factor. As Figure 3.10 shows, each step adds value, especially in terms of return per trade.

Monitoring Seasonal Data

Using quote sheets that track the various elements of seasonality make it easy to pinpoint trading seasonal setups and changes to the seasonal aspects of your current portfolio positions.

Let's again use the Dow 30 component issues as an example. In Figure 3.11 the Dow 30 component issues are listed in alphabetic order along with several key seasonal statistics. *Average net heat* measures the net seasonal heat that is currently in progress for a particular stock. The more positive this number, the more consistently strong seasonal zones have occurred at this

TABLE 3.4 Daily DMA Channel Signals in the Direction of Seasonal Zones for the Dow 30 Stocks with Valid Cycle-R and Beta of 1 or More during 2010

Symbol	Strong Zone Net %	SZ P/L	Weak Zone Net %	WZ P/L	Total P/L
AA	3.91%	3.91%	-12.50%	12.50%	16.41%
AXP	9.98%	9.98%	no trade	—	9.98%
BAC	10.12%	10.12%	4.34%	-4.34%	5.78%
CAT	13.88%	13.88%	-11.06%	11.06%	24.94%
CSCO	-13.45%	-13.45%	no trade	—	-13.45%
DD	0.47%	0.47%	1.42%	-1.42%	-0.95%
GE	14.94%	14.94%	5.18%	-5.18%	9.75%
INTC	8.65%	8.65%	-0.75%	0.75%	9.40%
MSFT	7.45%	7.45%	0.63%	-0.63%	6.82%
UTX	0.94%	0.94%	2.71%	-2.71%	-1.77%
	Average:	5.69%		1.25%	6.69%
	Median:	8.05%		-1.03%	8.11%
			Wins:	7	
			Losses:	3	
			Win/Loss Ratio:	2.33	
			Average Win:	11.87%	
			Average Loss:	-5.39%	
			Average Win/Average Loss Ratio:	2.20	
			Return Per Trade:	6.69%	

Source: Erlanger Chart Room.

time. The more negative this number, the more consistently weak seasonal zones have occurred at this time. The next two columns show the standard and optimized 40-day seasonal juice statistics. These measure the difference in the seasonal cycle 40 days in the future from the seasonal cycle today on both a standard and optimized basis. The more positive the number, the more the seasonal cycle jumps 40 days hence. The more negative the number, the more the seasonal cycle falls 40 days hence. It is always important to know the validity of these numbers, so we have added in the next two columns

TABLE 3.5 Daily and Monthly DMA Channel Signals in the Direction of Seasonal Zones for the Dow 30 Stocks with Valid Cycle-R and Beta of 1 or More during 2010

Symbol	Strong Zone Net %	SZ P/L	Weak Zone Net %	WZ P/L	Total P/L
AA	3.91%	3.91%	no trade	—	3.91%
AXP	9.98%	9.98%	no trade	—	9.98%
BAC	10.12%	10.12%	no trade	—	10.12%
CAT	13.88%	13.88%	no trade	—	13.88%
DD	0.47%	0.47%	no trade	—	0.47%
GE	14.94%	14.94%	no trade	—	14.94%
INTC	8.65%	8.65%	no trade	—	8.65%
UTX	no trade	—	2.71%	-2.71%	-2.71%
Average:		8.85%		-2.71%	7.40%
Median:		9.98%		-2.71%	9.31%
Wins:					7
Losses:					1
Win/Loss Ratio:					7.00
Average Win:					8.85%
Average Loss:					-2.71%
Average Win/Average Loss Ratio:					3.26
Return Per Trade:					7.40%

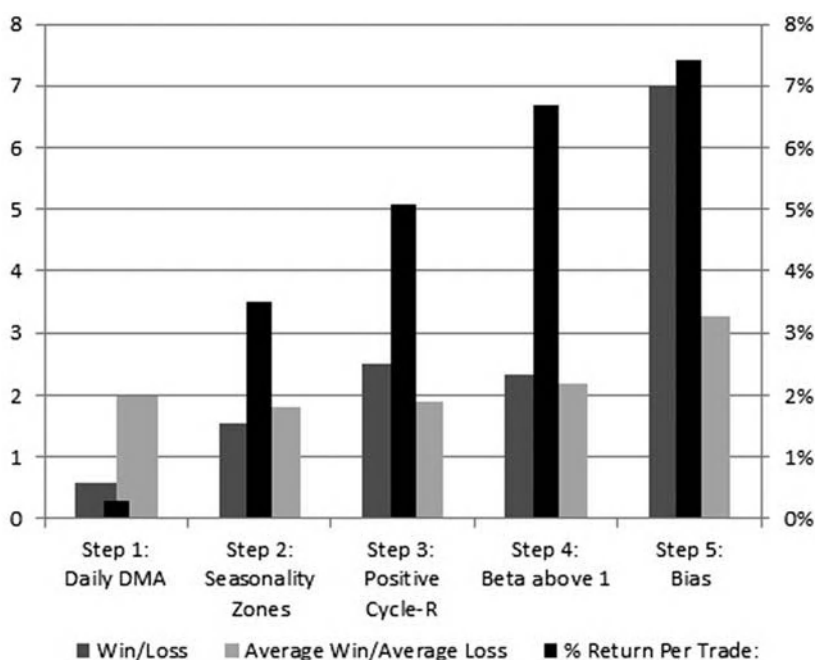
Source: Erlanger Chart Room.

the standard and optimized Cycle-R statistics. Seasonal data is used as setups for trades, so we have also added a trigger column that shows a stock's price relative to its daily DMA channel.

Performing various sorts on these columns allows us to hone in on opportunities.

In Figure 3.12 the Dow 30 component issues are sorted by average net seasonal heat. This tells us right away which stocks during this time of the year are in strong seasonal zones. It is important to remember that seasonal patterns are setups, not triggers. The stock that has the most positive seasonal heat is Wal-Mart (WMT), but two additional factors make this a poor choice: the Cycle-R is negative, which means the seasonal pattern is not a valid one on

FIGURE 3.10 Performance of Seasonality Strategy Steps for the Dow 30 Stocks during 2010

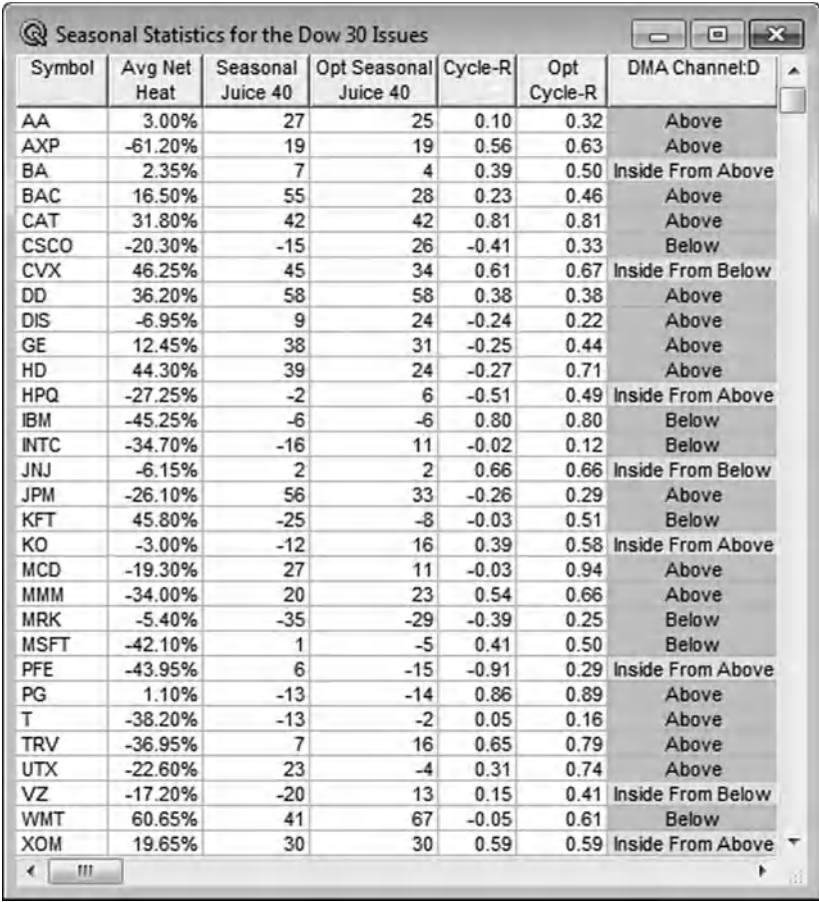


Source: Erlanger Chart Room.

a standard basis; additionally the price of WMT is below its DMA channel, indicating poor price action at this time. The next stock, Chevron (CVX), has great seasonal stats, but its price is inside the DMA channel, which indicates that price action has not triggered an advance phase. The next two stocks (Kraft Foods [KFT] and Home Depot [HD]) have negative Cycle-R stats. The next stock fits everything we are looking for.

DuPont (DD) in Figure 3.13 has strong average seasonal heat, extremely positive 40-day seasonal juice, a valid Cycle-R of 0.38, and its price is above its DMA channel. It has been in this state for several weeks.

Again looking at Figure 3.12, but this time from the other end of the spectrum, we find American Express (AXP) has the weakest average net seasonal heat. This is not the greatest short candidate, however, because the 40-day seasonal juice is slightly positive and also because the price of AXP is above its DMA channel. The next stock is IBM (Figure 3.14), which sports the second-worst average net seasonal heat, a negative 40-day seasonal juice, and a very valid Cycle-R of 0.80, and whose price has just slipped below its DMA channel.

FIGURE 3.11 Seasonality Strategy Statistics for the Dow 30 Stocks in Alphabetical Order


Symbol	Avg Net Heat	Seasonal Juice 40	Opt Seasonal Juice 40	Cycle-R	Opt Cycle-R	DMA Channel:D
AA	3.00%	27	25	0.10	0.32	Above
AXP	-61.20%	19	19	0.56	0.63	Above
BA	2.35%	7	4	0.39	0.50	Inside From Above
BAC	16.50%	55	28	0.23	0.46	Above
CAT	31.80%	42	42	0.81	0.81	Above
CSCO	-20.30%	-15	26	-0.41	0.33	Below
CVX	46.25%	45	34	0.61	0.67	Inside From Below
DD	36.20%	58	58	0.38	0.38	Above
DIS	-6.95%	9	24	-0.24	0.22	Above
GE	12.45%	38	31	-0.25	0.44	Above
HD	44.30%	39	24	-0.27	0.71	Above
HPQ	-27.25%	-2	6	-0.51	0.49	Inside From Above
IBM	-45.25%	-6	-6	0.80	0.80	Below
INTC	-34.70%	-16	11	-0.02	0.12	Below
JNJ	-6.15%	2	2	0.66	0.66	Inside From Below
JPM	-26.10%	56	33	-0.26	0.29	Above
KFT	45.80%	-25	-8	-0.03	0.51	Below
KO	-3.00%	-12	16	0.39	0.58	Inside From Above
MCD	-19.30%	27	11	-0.03	0.94	Above
MMM	-34.00%	20	23	0.54	0.66	Above
MRK	-5.40%	-35	-29	-0.39	0.25	Below
MSFT	-42.10%	1	-5	0.41	0.50	Below
PFE	-43.95%	6	-15	-0.91	0.29	Inside From Above
PG	1.10%	-13	-14	0.86	0.89	Above
T	-38.20%	-13	-2	0.05	0.16	Above
TRV	-36.95%	7	16	0.65	0.79	Above
UTX	-22.60%	23	-4	0.31	0.74	Above
VZ	-17.20%	-20	13	0.15	0.41	Inside From Below
WMT	60.65%	41	67	-0.05	0.61	Below
XOM	19.65%	30	30	0.59	0.59	Inside From Above

Source: Erlanger Chart Room.

These seasonal statistics are designed to get the most benefit from identifiable seasonal tendencies, allowing the user to incorporate them into sensible trading strategies. Available through the Bloomberg system is a two-part weekly screening of equity issues that uncover seasonally strong and weak ideas.

The Erlanger Seasonally Strong Ideas Report (Figure 3.15) unveils stocks that have strong seasonal tendencies just ahead and also have elevated short selling underway. The presence of short sellers could add to the buying power as the stock prices reflect the strong seasonality.

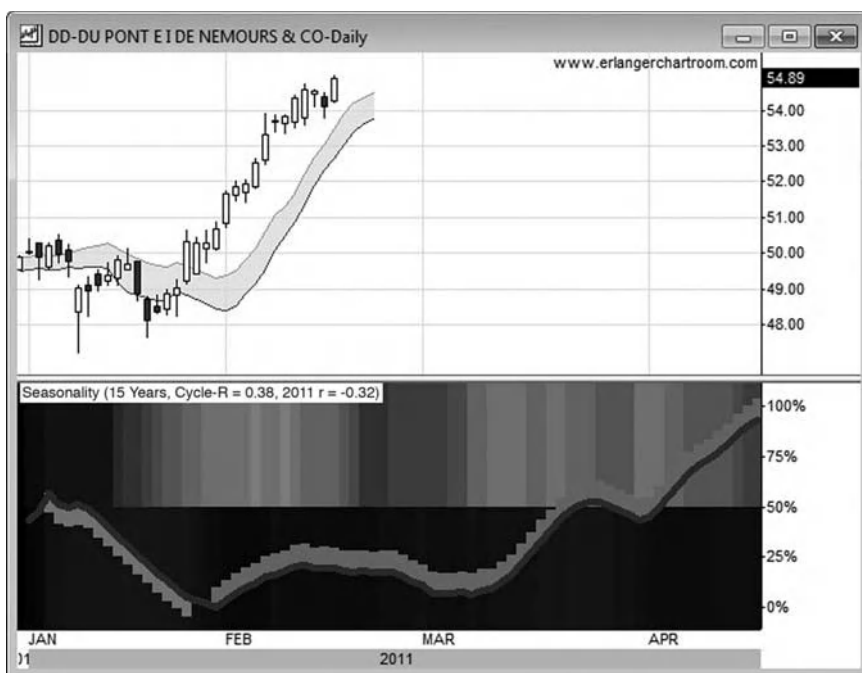
This report screens for stocks that have rising seasonality on a 10-, 20- and 40-trading-day outlook. We also filter for stocks not in downtrends, that

FIGURE 3.12 Seasonality Strategy Statistics for the Dow 30 Stocks Sorted by Average Net Seasonal Heat

Symbol	Avg Net Heat	Seasonal Juice 40	Opt Seasonal Juice 40	Cycle-R	Opt Cycle-R	DMA Channel:D
WMT	60.65%	41	67	-0.05	0.61	Below
CVX	46.25%	45	34	0.61	0.67	Inside From Above
KFT	45.80%	-25	-8	-0.03	0.51	Inside From Below
HD	44.30%	39	24	-0.27	0.71	Above
DD	36.20%	58	58	0.38	0.38	Above
CAT	31.80%	42	42	0.81	0.81	Above
XOM	19.65%	30	30	0.59	0.59	Inside From Above
BAC	16.50%	55	28	0.23	0.46	Above
GE	12.45%	38	31	-0.25	0.44	Above
AA	3.00%	27	25	0.10	0.32	Above
BA	2.35%	7	4	0.39	0.50	Inside From Above
PG	1.10%	-13	-14	0.86	0.89	Inside From Above
KO	-3.00%	-12	16	0.39	0.58	Inside From Above
MRK	-5.40%	-35	-29	-0.39	0.25	Below
JNJ	-6.15%	2	2	0.66	0.66	Inside From Above
DIS	-6.95%	9	24	-0.24	0.22	Above
VZ	-17.20%	-20	13	0.15	0.41	Inside From Below
MCD	-19.30%	27	11	-0.03	0.94	Above
CSCO	-20.30%	-15	26	-0.41	0.33	Below
UTX	-22.60%	23	-4	0.31	0.74	Above
JPM	-26.10%	56	33	-0.26	0.29	Above
HPQ	-27.25%	-2	6	-0.51	0.49	Above
MMM	-34.00%	20	23	0.54	0.66	Above
INTC	-34.70%	-16	11	-0.02	0.12	Inside From Above
TRV	-36.95%	7	16	0.65	0.79	Above
T	-38.20%	-13	-2	0.05	0.16	Above
MSFT	-42.10%	1	-5	0.41	0.50	Below
PFE	-43.95%	6	-15	-0.91	0.29	Inside From Above
IBM	-45.25%	-6	-6	0.80	0.80	Below
AXP	-61.20%	19	19	0.56	0.63	Above

Source: Erlanger Chart Room.

have equal to or greater than a value of 50 in our Erlanger Tech and Short Selling Intensity Ranks, Short Ratios equal to or greater than 1.5, closing price above 3.2, a positive Seasonal Cycle-R, and positive seasonal average heat. The fields in this report include market cap, trend direction, option rank (essentially a normalized put/call ratio), 40-day seasonal juice, seasonal Cycle-R, and monthly and daily DMA channels with the age of the current DMA status.

FIGURE 3.13 DuPont as a Strong Seasonal Strategic Play

Source: Erlanger Chart Room.

The Erlanger Seasonally Weak Ideas Report (Figure 3.16) unveils stocks that have weak seasonal tendencies just ahead and also have diminished short selling underway. The absence of short sellers could add to the weakness as the stock prices reflect the weak seasonality.

This report screens for stocks that have declining seasonality on a 10-, 20-, and 40-trading-day outlook. We also filter for stocks not in uptrends, that have equal to or less than a value of 70 in our Erlanger Tech Rank, equal to or less than a value of 50 in our Erlanger Short Selling Intensity Rank, that have Short Ratios equal to or less than 6, closing price above 5, a positive Seasonal Cycle-R, and negative seasonal average heat. The fields in this report include market cap, trend direction, option rank (essentially a normalized put/call ratio), 40-day seasonal juice, seasonal Cycle-R, and monthly and daily DMA channels with the age of the current DMA status.*

*For more information on the analysis provided in this chapter, please visit the Erlanger Chart Room (www.erlangerchartroom.com) powered by Bloomberg. Special seasonal, short interest, and technical reports are also available in the Bloomberg system (see ERLA-<go>).

FIGURE 3.14 IBM as a Weak Seasonal Strategic Play

Source: Erlanger Chart Room.

Erlanger Studies: The Art of the Squeeze Play

Fundamental analysis focuses on the economic conditions that can affect the valuation of a security. On the other hand, *technical analysis* is the study of the market itself by examining the data generated by the action of a security's trading data or the data generated from the marketplace related to that security. Fundamental and technical analyses are complementary because shifts in fundamental factors are ultimately behind the shifts in price that are sought by the investor or trader. The technician, by focusing on the marketplace itself, makes it easier for the investor or trader to determine if a market is moving in line with, or contrary to, the known fundamentals.

The Erlanger studies as provided by the *Phil Erlanger Research* are solely technical in nature. That said, they are offered as an overall approach to investment decision making. The process of making intelligent investment and trading decisions is not always intuitive. The irony is that fundamental data rarely appears ideal when security prices are "cheap." The purpose of technical

FIGURE 3.15 Erlanger Seasonally Strong Ideas Report

Symbol	Issue	Price 02/15/11	Mkt Cap (mil)	Inst Ownership	Choppiness	RSI	ETD	Power Rank	Tech Rank	Short Rank	Short Ratio	Sht Chng	Option Rank	Seasonal Juice 40-Day Lookahead	Seasonal Cycle R
Banks															
WFTC	WINTRUST FINANCIAL CORP	\$33.13	1157		69.61	51,570	PULLBACK	60%	50%	79%	11.05	(.1)	99.78	14,5099	.08
Capital Goods															
DCI	DONALDSON INC	\$61.78	4745	83%	40.07	69,373	UPTREND	72%	80%	56%	5.96	.7	60.47	17,6056	.88
SPW	SPX CORP	\$84.80	4257	89%	37.64	68,972	UPTREND	88%	100%	53%	3.09	1.1	51.32	28,6758	.26
SHAW	SHAW GROUP INC	\$39.97	3400	78%	40.17	60,955	UPTREND	62%	60%	67%	2.54	(.2)	38.58	39,0098	.22
Commercial & Professional Services															
DNB	DUN & BRADSTREET CORP DEL NEW	\$85.09	4239	80%	69.36	54,977	PULLBACK	68%	50%	97%	4.21	.3	38.96	26,4527	.49
Consumer Durables & Apparel															
ELY	CALLAWAY GOLF CO	\$7.92	510		48.59	54,306	RALLY	66%	50%	97%	10.98	.5	48.73	26,8424	.52
Diversified Financials															
CSH	CASH AMER INTL INC	\$40.96	1211		56.74	60,274	UPTREND	62%	50%	88%	15.63	(.8)	67.85	59,1500	.32
Energy															
OXY	OCCIDENTAL PETE CORP DEL	\$103.07	83753	79%	40.37	69,727	RALLY	71%	80%	54%	1.69	(.4)		46,6464	.71
WFT	WEATHERFORD INTERNATIONAL LTD	\$24.84	18417	65%	42.28	60,535	UPTREND	70%	80%	50%	1.68	.2	3.14	39,9283	.60
CAM	CAMERON INTERNATIONAL CORP	\$58.38	14161	92%	43.21	71,590	UPTREND	86%	100%	57%	1.88	.1	34.82	52,0059	.47
NE	NOBLE CORPORATION	\$39.24	9899	72%	55.51	61,100	UPTREND	64%	50%	93%	2.76	1.1	22.72	54,6409	.56
SPN	SUPERIOR ENERGY SVCS INC	\$37.17	2930	95%	46.66	61,582	UPTREND	76%	80%	67%	3.14	(.3)	65.67	32,5910	.55
FTO	FRONTIER OIL CORP	\$26.02	2751	87%	25.41	81,014	UPTREND	84%	100%	52%	3.30	(.7)	71.83	28,4941	.88

Source: Erlanger Chart Room.

FIGURE 3.16 Erlanger Seasonally Weak Ideas Report

Symbol	Issue	Price 02/15/11	Year to Date	Mkt Cap (ml)	Inst Ownership	Choppiness	RSI	ETD	Power Rank	Tech Rank	Short Rank	Shr Ratio	Shr Type	Option Rank	Seasonal Juice 40-Day Lookahead	Seasonal Cycle R
Capital Goods																
ESL	ESTERLINE TECHNOLOGIES CORP	\$70.93	87.20%	2156			66.41	52,224 PULLBACK	31%	40%	14%	2.29	2	65.27	12.1762	.82
CRDN	CERADYNE INC	\$35.55	75.04%	885	88%		65.81	52,537 PULLBACK	49%	60%	28%	4.51	(3)	54.71	157.0819	.30
SXI	STANDEX INTL CORP	\$32.43	63.46%	405	79%		45.21	53,594 PULLBACK	39%	50%	16%	3.56	1		14.1323	.24
Consumer Durables & Apparel																
MOV	MOVADO GROUP INC	\$14.59	55.38%	264	95%		65.42	43,923 RALLY	21%	41%	2%	5.70	1	57.25	15.7932	.36
Consumer Services																
MCS	MARCUS CORP	\$11.94	-26.43%	248	50%		64.25	41,096 RALLY	11%	10%	13%	4.25	2	81.08	114.6905	.10
Food Beverage & Tobacco																
KO	COCA-COLA CO	\$63.19	39.58%	146729	65%		50.70	49,762 RALLY	13%	23%	0%	1.19	(3)	32.15	144.0913	.39
STZ	CONSTELLATION BRANDS INC	\$20.38	29.23%	3787	80%		44.95	60,327 RALLY	15%	30%	5%	1.47	(1)	56.72	125.6835	.46
CPO	CORN PRODS INTL INC	\$48.05	66.55%	3633	90%		58.95	53,659 PULLBACK	37%	50%	10%	.71	0	52.82	12.6505	.64
Health Care Equipment & Services																
ABC	AMERISOURCEBERGEN CORP	\$36.60	105.27%	10032			54.79	59,296 PULLBACK	27%	40%	0%	1.03	(6)	65.41	114.7383	.66
VAR	VARIAN MED SYS INC	\$70.75	101.91%	8493	91%		50.02	58,995 RALLY	37%	50%	11%	3.74	(3)	55.87	16.3596	.50
MD	MEDNAX INC	\$63.92	101.64%	3048	95%		30.64	44,343 RALLY	16%	18%	28%	4.12	(1)	22.53	113.8403	.38
CHSI	CATALYST HEALTH SOLUTIONS INC	\$44.90	84.39%	2017	88%		56.90	55,897 RALLY	34%	50%	3%	2.78	(1)	74.92	17.4319	.03
BLUD	BIIMUCOR INC	\$20.03	-24.64%	1403	95%		59.19	46,181 PULLBACK	31%	30%	32%	4.19	3	51.64	124.6121	.56
Insurance																
THG	HANOVER INS GROUP INC	\$46.55	8.33%	2090	89%		47.21	42,240 PULLBACK	14%	10%	23%	3.49	2	89.25	10.5234	.11
HMIN	HORACE MANN EDUCATORS CORP NEW	\$17.31	88.36%	686			68.75	42,091 DOWNTREND	14%	16%	21%	3.18	1	28.76	119.1655	.18
UFCS	UNITED FIRE & CAS CO	\$19.73	-36.50%	518	62%		61.52	37,877 RALLY	10%	14%	11%	5.16	5	60	127.4365	.34

Source: Erlanger Chart Room.

indicators is to give the investor or trader a means to navigate the swings from low to high—and to avoid or sell short those swings from high to low.

Erlanger Studies are organized into what we call the art of the Squeeze Play concept. At its core, there are four key strategy concepts: bias, setups, triggers, and monitoring. Each Erlanger study falls into one of these categories, and several can be used in more than one category. The Erlanger studies also represent a two-factor model comprised of price action and sentiment. These two factors combine to delineate the “squeeze play” force behind successful long and short positions.

Disciplined Strategies

As is true in many things in life, progress is fleeting if you don't have a plan. This is especially true with buying and selling financial instruments. Add the leverage of derivative products, and the need for proper planning becomes exponentially important.

It is essential to note that each participant in the financial decision-making process must understand his or her risk tolerance. The plans and strategies we are about to discuss are general enough to allow most to adapt to their specific needs and risk tolerances, but it is the responsibility of the reader to do the due diligence to determine their suitability for these techniques.

No indicator or study works all the time in all situations. In fact, how indicators fail can be the best information about the changing health of any market or security. That can, however, be an expensive learning process. The Erlanger Studies are in part designed not only to identify when to buy and when to sell, but more importantly when to be buying and when to be selling—in other words, to determine an effective *bias* for one or the other side of a market.

There are four main strategic steps that apply to traders and investors alike: bias, setups, triggers, and monitoring. The nice thing about these strategies is that they are simple concepts, and if followed in order, they make up a realistic, intuitive plan for making financial decisions that should improve one's batting average.

Strategic Step #1: Determining Bias

Failing to determine bias is why most portfolio managers and traders go through periods where they dramatically underperform.

The concept of *bias* is such a simple one, but it is the critical step that most fail to consider. The chances of a positive long-term performance are

greatly reduced without a disciplined approach to deciding which side of a market to trade.

We think of bias as the “big picture.” Is the condition of a market favorable to long trades or short trades? Generally, bias indicators are in a larger timeframe than that used to trigger into a trade. For instance, indicators in a weekly or monthly interval are used to determine bias if a trader is using daily data to buy or sell.

Bias indicators are designed to specifically answer the question of taking long or short opening positions. If short selling is not a tactic that will be used, then the bias answers the question of taking a long or neutral stance in a particular market. Trading or investing in the direction of bias indicators is our first strategic step.

Strategic Step #2: Identifying Setups

Once a trader or investor has determined the bias, or which side of a market to trade on, the next step is to identify *setup* situations.

Setups are designed to indicate a potential change in trend, or perhaps a noteworthy resumption of a trend. Setups by themselves are not actionable. Setup conditions can last for extended periods of time before price action moves in an expected way.

Setups can be in any interval, and often are wide-ranging in nature. Sentiment data, price patterns, volume, and seasonal patterns are all setup indicators. Identification of setups is our second strategic step.

Strategic Step #3: Using Triggers

Triggers are indicators that are used to enter trades. They indicate when a market is moving in an expected direction given a previously identified setup. For example, if the bias is positive, and the setup for a stock is above average short interest, the trigger could be a price indicator moving positively (a short squeeze situation).

Most triggers are based upon price action. Using triggers is our third strategic step.

Strategic Step #4: Monitoring Positions

Once an open position is established, there are often several technical events that are expected to unfold as time elapses. It is crucial that specific indicators are used to *monitor* open positions so that a clear retreat can be made when

a market begins to move contrary to expected guidelines or, more important, against an open long or short position. It is also important to monitor a universe of potential ideas.

Monitoring indicators can be in any form and in any timeframe. It is often the case that the same indicators used for bias, setups, and triggers are used for monitoring purposes. If any of those criteria for taking a position change, it stands to reason that a reevaluation is in order. Keeping abreast of a predetermined checklist of such indicators on an ongoing basis can go a long way toward exiting in a timely fashion.

Monitoring positions is our fourth strategic step. It is also a process that aids in selecting particular opportunities from a diverse universe of securities by the use of quote sheets and slide shows that alert users to key technical developments.

The rest of this chapter is a detailed description of a comprehensive group of Erlanger Studies specifically designed for the four squeeze play strategic steps detailed above.

Study Descriptions

The application of bias, setups, triggers, and monitoring can be implemented in many ways. The tools I prefer to use, most of which I have created, are described next.

Displaced Moving Average Channel

The displaced moving average (DMA) channel is one of those indicators that, though simple in construction, are so powerful in application. A “displaced” moving average is simply a normal moving average shifted to the right or left. A DMA can be computed based on a stock’s closing price, high price, and/or low price. The DMA channel involves two DMA averages. These two averages form a channel that makes any trend-changing event clear, as well as illustrates the strength of a trend underway. The first average is a six-period average of price highs displaced four places to the right. The second is a six-period average of price lows displaced four places to the right. The DMA channel can be used on any time interval, but there must be price-high and price-low data available for each interval.

The DMA channel is both a bias indicator and a trigger indicator. It can also be used as a setup indicator.

A positive bias reflects times when only long trades are considered. If price moves above the DMA channel, then the bias is positive. However, using the

FIGURE 3.17 Monthly DMA Channel as the Big-Picture Bias

Source: Bloomberg LP.

DMA channel as a bias should be confined to intervals larger than one uses for triggers. For instance, if you are trading an index using triggers based on daily data, use weekly or monthly data to determine the bias. If you are trading on an intraday basis, then the daily DMA channel can be used to determine bias.

Figure 3.17 shows the SPX with the DMA channel on a monthly basis. We view the monthly DMA channel as the big-picture bias. The benefit of establishing bias in this way can be seen if traders took only long trades during times when the S&P 500 index was above (or inside from above) its monthly DMA channel, and short trades when the S&P 500 index was below (or inside from below) its monthly DMA channel.

At the time of this writing, the S&P 500 index had struggled since 2000, losing -16.57 percent. But as Table 3.1 demonstrates, navigating the S&P 500 using its monthly DMA channel as described earlier yields a much different story.

In Table 3.6, the summary statistics include “moving with bias” (this measures the cumulative P&L on trades made in the direction of the bias), and “same trades” (this measures the cumulative P&L on trades made on the same trade dates as the “moving with bias” trades, except the bias is ignored, that is, each trade is considered a long trade).

The action of the stock market during this period (since the start of 2000) has had many swings, both up and down. Many portfolio managers and traders suffered during the declines of 2000 to 2003 and 2008 to March 2009. Billions of dollars were lost. Imagine how much of that money would have been saved if those portfolio managers traded with the discipline of this big-picture bias.

TABLE 3.6 Performance Metrics for Monthly DMA Channel on S&P 500 since 2000

S&P 500 Bias	Start Date	Close	End Date	Close	% Change	# of Months
UP	1/31/2000	1394.46	11/30/2000	1314.95	-5.70%	10
DOWN	11/30/2000	1314.95	5/30/2003	963.80	36.43%	30
UP	5/30/2003	963.80	1/31/2008	1374.30	42.59%	56
DOWN	1/31/2008	1374.30	7/31/2009	987.48	39.17%	18
UP	7/31/2009	987.48	6/30/2010	1030.71	4.38%	11
DOWN	6/30/2010	1030.71	10/29/2010	1183.26	-12.89%	4
UP	10/29/2010	1183.26	11/5/2010	1225.85	3.60%	1
Moving with the Bias =				107.58%		
Ignoring Bias=				4.82%		
Buy and Hold=				-12.09%		
Winners =				5		
Losers =				2		
Average Winner =				25.24%		
Average Loser =				-9.30%		
Average Length of Winners =				23.2 months		
Average Length of Losers =				7 months		

Source: Erlanger Chart Room.

The S&P 500 is only one index. Looking at all the major indices and their big-picture bias signals is a prudent way to confirm any one index signal.

If the majority of indices sport a big-picture bias in the same direction, then bias is confirmed. Table 3.7 shows how the effectiveness of the monthly DMA channel spans the breadth of major U.S. indices. On average, moving with the bias during the period measured in Table 3.7 returned 110.94 percent as opposed to the relatively paltry return of 8.17 percent if the bias was ignored. Indices, however, do not have to be the only source of big-picture bias. For a stock, its monthly DMA channel can also act as a measure of bias.

General Electric (GE) is often thought of as a representative Dow Industrial stock, but in the past decade it has fared poorly on a relative basis. Following GE relative to its bias as measured by its monthly DMA channel

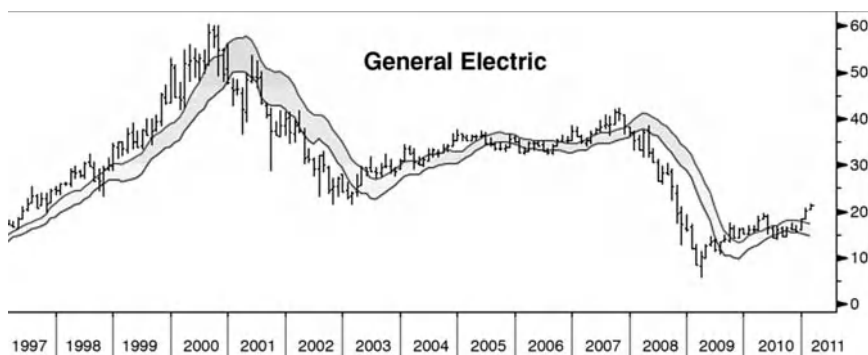
TABLE 3.7 Big-Picture Bias Performance Metrics for Major Indices (from 2000 to November 5, 2010)

Symbol	Moving with Bias	Ignoring Bias	Winners	Losers	Average Winner	Average Loser	Avg # of Months Winners	Avg # of Months Losers
\$INDU	67.38%	19.67%	6	2	13.97%	−8.22%	20.67	2.50
\$SPX	107.58%	4.82%	5	2	25.24%	−9.30%	23.20	7.00
\$NDX	238.48%	2.98%	7	4	40.01%	−10.39%	16.14	4.25
\$OEX	84.92%	−17.38%	6	3	18.63%	−8.95%	18.83	5.67
\$RUT	57.47%	23.29%	4	1	17.97%	−14.40%	16.75	2.00
\$RUA	110.70%	13.47%	5	2	25.75%	−9.02%	23.60	6.00
\$RUI	110.06%	10.32%	5	2	25.84%	−9.56%	23.20	7.00
Average:	110.94%	8.17%	5.43	2.29	23.92%	−9.98%	20.34	4.92

Source: Erlanger Chart Room.

(see Figure 3.18) made a huge difference. As Table 3.8 shows, the buy-and-hold strategy netted a 63 percent loss, but following GE on a big-picture basis resulted in 168.88 percent. Most of those gains were in very large percentage drops in GE.

Perhaps WorldCom (Figure 3.19) is the quintessential example of the benefits of using the monthly DMA channel as a bias indicator.

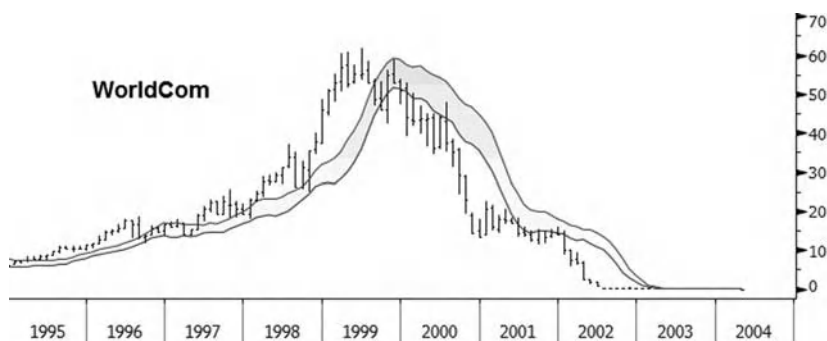
FIGURE 3.18 General Electric and Its Monthly DMA Channel

Source: Bloomberg LP.

TABLE 3.8 Performance Metrics for Monthly DMA Channel on General Electric since 2000

GE Bias	Start Date	Close	End Date	Close	% Change	# of Periods
UP	1/31/2000	44.54	1/31/2001	45.98	3.23%	12
DOWN	1/31/2001	45.98	5/30/2003	28.70	60.21%	28
UP	5/30/2003	28.70	8/31/2005	33.61	17.11%	27
DOWN	8/31/2005	33.61	9/29/2006	35.30	−4.79%	13
UP	9/29/2006	35.30	1/31/2008	35.36	0.17%	16
DOWN	1/31/2008	35.36	9/30/2009	16.42	115.35%	20
UP	9/30/2009	16.42	6/30/2010	14.42	−12.18%	9
DOWN	6/30/2010	14.42	11/3/2010	16.06	−10.21%	5
Moving with the Bias =				168.88%		
Same Trades, but Ignoring Bias=				−66.42%		
Buy and Hold=				−63.94%		
Winners =				5		
Losers =				3		
Average Winner =				39.21%		
Average Loser =				−9.06%		
Average Length of Winners =				20.6 months		
Average Length of Losers =				9 months		

Source: Erlanger Chart Room.

FIGURE 3.19 WorldCom and Its Monthly DMA Channel

Source: Bloomberg LP.

TABLE 3.9 Big-Picture Bias—Dow Industrials Component Issues (from 2000 to November 5, 2010)

Symbol	Moving with Bias	Ignoring Bias	Winners	Losers	Average Winner	Average Loser	Avg # of Months Winners	Avg # of Months Losers
AA	74.71%	−58.16%	3	10	67.99%	−12.93%	17.33	7.20
AXP	36.32%	−38.17%	3	5	39.36%	−16.35%	20.67	10.40
BA	203.92%	101.01%	4	3	61.75%	−14.37%	23.75	6.33
BAC	219.38%	3.75%	3	3	85.37%	−12.24%	31.00	10.67
CAT	10.90%	101.78%	3	8	38.55%	−13.09%	16.67	8.00
CSCO	329.57%	−29.84%	5	2	66.87%	−2.39%	21.00	10.00
CVX	101.03%	117.82%	3	4	51.33%	−13.24%	31.67	8.25
DD	−20.11%	−46.94%	3	8	24.09%	−11.55%	16.67	8.00
DIS	63.72%	−18.05%	4	4	28.38%	−12.45%	21.50	7.00
GE	179.10%	−77.79%	5	2	39.21%	−8.48%	20.60	11.00
HD	−96.30%	−44.91%	4	11	16.84%	−14.88%	15.50	5.91
HPQ	142.10%	50.52%	4	3	43.59%	−10.76%	23.50	10.33
IBM	−136.03%	48.18%	4	11	9.50%	−15.82%	16.50	5.55
INTC	−60.25%	−76.07%	3	8	17.27%	−14.01%	15.00	10.25
JNJ	−62.94%	38.21%	3	9	6.68%	−9.22%	13.00	9.44
JPM	103.51%	−5.24%	5	1	22.61%	−9.54%	22.60	8.00
KFT	13.57%	−12.17%	3	1	4.95%	−1.27%	16.67	18.00
KO	−66.55%	11.15%	4	9	6.41%	−10.25%	15.00	7.56
MCD	66.97%	75.45%	4	3	29.71%	−17.29%	26.00	4.67
MMM	−77.05%	60.30%	3	10	12.33%	−11.41%	17.67	5.80
MRK	33.09%	−52.85%	4	4	31.72%	−23.45%	22.00	6.75
MSFT	−84.50%	−41.20%	4	9	7.17%	−12.58%	14.75	7.22
PFE	32.38%	−60.67%	3	5	27.89%	−10.26%	25.33	9.40
PG	−40.82%	28.69%	6	9	8.91%	−10.48%	13.17	5.33
T	57.28%	−16.64%	3	6	42.45%	−11.68%	26.67	8.00
TRV	−23.69%	114.44%	4	7	15.93%	−12.49%	17.00	8.57
UTX	77.37%	151.27%	3	6	51.92%	−13.06%	29.00	7.00

TABLE 3.9 (Continued)

Symbol	Moving with Bias	Ignoring Bias	Winners	Losers	Average Winner	Average Loser	Avg # of Months Winners	Avg # of Months Losers
VZ	36.64%	-29.51%	4	3	16.92%	-10.35%	26.75	6.67
WMT	-114.96%	-4.63%	1	12	9.53%	-10.37%	24.00	8.42
XOM	30.65%	59.92%	3	6	28.10%	-8.94%	24.67	7.00
Average:	34.30%	11.66%	3.60	6.07	30.44%	-11.84%	20.85	8.22

Source: Erlanger Chart Room.

From February 1995 to the last tick in the life of WorldCom (see Figure 1.3), there was only one shift in the bias. This bias shift occurred on the last day of September 1999, when WorldCom closed at \$46.0527. The movement of WorldCom's price during the former up phase was a gain of 513.33 percent. The movement of WorldCom's price during the latter down phase was a loss of 100 percent. Trading in sync with the bias as measured by the monthly DMA channel is a strategy for avoiding severe drawdowns. That said, the monthly DMA channel does not work for all stocks, as one can see in Table 3.9—a bias review of the components of the Dow Industrial Average.

There is a very good reason why some stocks can't be fit into a technical bias strategy method. They don't trend enough to warrant long-term exposure. The data on the major indices demonstrates the effectiveness of the big-picture bias for the market averages. The ineffectiveness of certain stocks to respond to the action of the market tends to minimize the extent of that stock's trends. In statistical terms, these stocks have low beta. Beta is a measure of a stock's sensitivity to a market index, usually the S&P 500. A beta of 1 is effectively a normal sensitivity to the action of the market. A beta of less than 1 suggests that a stock is less influenced by the market. A beta higher than 1 measures a stock that is supersensitive to the direction of the market, up or down. Let's again examine the Dow Industrial 30 component stocks.

Table 3.10 shows the beta, symbol, and a value we call monthly "Big B" that subtracts the return for ignoring the bias from the return for moving with the bias. The larger this number, the more benefit there has been in following the monthly DMA channel as a bias indicator. Clearly the stocks that don't respond well to this bias metric are significantly lower in beta. This suggests that *beta becomes an important filter* when selecting stocks, especially when

TABLE 3.10 Dow Industrials Component Issues “Big B”

Beta	Symbol	Moving with Bias Less Ignoring Bias (monthly “Big B”)
2.12	AA	132.87%
2.08	AXP	74.49%
1.32	BA	102.91%
2.31	BAC	215.63%
1.85	CAT	−90.88%
1.25	CSCO	359.41%
0.7	CVX	−16.79%
1.46	DD	26.83%
1.18	DIS	81.77%
1.69	GE	256.89%
0.79	HD	−51.39%
1.02	HPQ	91.58%
0.71	IBM	−184.21%
1.15	INTC	15.82%
0.6	JNJ	−101.15%
1.12	JPM	108.75%
0.55	KFT	25.74%
0.58	KO	−77.70%
0.47	MCD	−8.48%
0.84	MMM	−137.35%
0.64	MRK	85.94%
1.01	MSFT	−43.30%
0.66	PFE	93.05%
0.48	PG	−69.51%
0.62	T	73.92%
0.59	TRV	−138.13%

TABLE 3.10 (Continued)

Beta	Symbol	Moving with Bias Less Ignoring Bias (monthly "Big B")
1.05	UTX	−73.90%
0.61	VZ	66.15%
0.35	WMT	−110.33%
0.41	XOM	−29.27%
1.23625	= Average Beta of Bias Performers	
0.745	= Average Beta of Bias Nonperformers	

Source: Erlanger Chart Room.

using the monthly DMA channel as a bias for determining when to be buying or selling. Table 3.11 is the same as Table 3.9, except that we have filtered out those stocks with a beta below 1.

The benefit of filtering out low beta stocks is a smaller universe populated with stocks that move in ways that make following the big-picture bias significantly more effective.

Table 3.12 shows the comparison of the effectiveness of following the big-picture bias of all Dow issues versus Dow issues for high beta Dow issues. The Big B for the high beta universe is four times that for all Dow stocks. Average losers are roughly equivalent, but average gainers are 39 percent larger for the high beta universe.

One useful buy trigger signal is when price moves above the DMA channel; a sell trigger is signaled when price moves below the DMA channel. It is important for portfolio managers or traders to determine the interval appropriate for their type of trading, and match that to the DMA channel when used for triggers, and increase the interval when using the DMA channel for bias determination. For example, if you trade on daily data, use daily DMA channels for triggers and weekly or monthly data for bias determination. If you trade on five-minute bars, use five-minute (or smaller) DMA channels as triggers and 29-minute or 60-minute DMA channels for bias determination.

Let's consider the triggered trades for General Electric (GE) using the daily DMA channel for the negative big-picture bias period of 1/31/2008 through 9/30/2009, as delineated in Table 3.8.

TABLE 3.11 Big-Picture Bias—Dow Industrials Component Issues with Beta of 1 or Higher (from 2000 to November 5, 2010)

Symbol	Moving with Bias	Ignoring Bias	Winners	Losers	Average Winner	Average Loser	Avg # of Months Winners	Avg # of Months Losers	Beta
BAC	219.38%	3.75%	3	3	85.37%	−12.24%	31.00	10.67	2.31
AA	74.71%	−58.16%	3	10	67.99%	−12.93%	17.33	7.20	2.12
AXP	36.32%	−38.17%	3	5	39.36%	−16.35%	20.67	10.40	2.08
CAT	10.90%	101.78%	3	8	38.55%	−13.09%	16.67	8.00	1.85
GE	179.10%	−77.79%	5	2	39.21%	−8.48%	20.60	11.00	1.69
DD	−20.11%	−46.94%	3	8	24.09%	−11.55%	16.67	8.00	1.46
BA	203.92%	101.01%	4	3	61.75%	−14.37%	23.75	6.33	1.32
CSCO	329.57%	−29.84%	5	2	66.87%	−2.39%	21.00	10.00	1.25
DIS	63.72%	−18.05%	4	4	28.38%	−12.45%	21.50	7.00	1.18
INTC	−60.25%	−76.07%	3	8	17.27%	−14.01%	15.00	10.25	1.15
JPM	103.51%	−5.24%	5	1	22.61%	−9.54%	22.60	8.00	1.12
UTX	77.37%	151.27%	3	6	51.92%	−13.06%	29.00	7.00	1.05
HPQ	142.10%	50.52%	4	3	43.59%	−10.76%	23.50	10.33	1.02
MSFT	−84.50%	−41.20%	4	9	7.17%	−12.58%	14.75	7.22	1.01
Average:	91.12%	1.21%	3.71	5.14	42.44%	−11.70%	21.00	8.67	1.47

Source: Erlanger Chart Room.

Table 3.13 shows all the GE trigger trades, sorted by up and down signals. Both long and short trades showed profits overall, but the gains for short trades (based on down triggers) were almost three and a half times those of long trades (based on up triggers). This is understandable given that short trades in an overall negative bias period are expected to fare better than long trades.

As is the case with any indicator used as a trigger, the idea is to view trigger signals as a mechanical process for entering and exiting a trade. The trigger itself is not the main reason behind a transaction, but rather an indication that the market has begun to move in the expected direction based on other factors. Typically, those other factors are classified as setup indicators.

The DMA channel can also serve as a setup measure, though this is a rare occurrence. For example, if there is an upturn in price, we look for price

TABLE 3.12 Big-Picture Bias—Dow Industrials Component Issues: All Dow Stocks versus High Beta Dow Stocks (from 2000 to November 5, 2010)

	Moving with Bias	Ignoring Bias	Winners	Losers	Average Winner	Average Loser	Avg # of Months Winners	Avg # of Months Losers	Moving with Bias Less Ignoring Bias (Monthly “Big B”)
Beta => 1 Dow Stocks:	91.12%	1.21%	3.71	5.14	42.44%	-11.70%	21.00	8.67	90%
All Dow Stocks:	34.30%	11.66%	3.60	6.07	30.44%	-11.84%	20.85	8.22	23%

Source: Erlanger Chart Room.

TABLE 3.13 Daily DMA Triggers—GE during Negative Bias Period, January 31, 2008 to September 30, 2009

Direction	Start Date	Close	End Date	Close	P/L
DOWN	2/6/2008	34.20	3/12/2008	33.96	0.71%
DOWN	4/9/2008	36.44	4/24/2008	32.81	11.06%
DOWN	5/7/2008	32.57	6/5/2008	31.06	4.86%
DOWN	6/6/2008	30.04	7/8/2008	28.06	7.06%
DOWN	7/15/2008	26.65	7/17/2008	28.00	−4.82%
DOWN	8/19/2008	28.71	9/8/2008	29.09	−1.31%
DOWN	9/9/2008	28.12	11/4/2008	20.77	35.39%
DOWN	11/10/2008	18.45	11/28/2008	17.17	7.45%
DOWN	12/15/2008	16.95	1/2/2009	17.07	−0.70%
DOWN	1/12/2009	15.83	3/10/2009	8.87	78.47%
DOWN	5/13/2009	12.91	6/1/2009	13.86	−6.85%
DOWN	6/15/2009	13.15	7/14/2009	11.64	12.97%
DOWN	8/17/2009	13.36	8/24/2009	14.20	−5.92%
DOWN	9/1/2009	13.34	9/8/2009	14.50	−8.00%
				<i>Total:</i>	130.37%
Direction	Start Date	Close	End Date	Close	P/L
UP	1/31/2008	35.36	2/6/2008	34.20	−3.28%
UP	3/12/2008	33.96	4/9/2008	36.44	7.30%
UP	4/24/2008	32.81	5/7/2008	32.57	−0.73%
UP	6/5/2008	31.06	6/6/2008	30.04	−3.28%
UP	7/8/2008	28.06	7/15/2008	26.65	−5.02%
UP	7/17/2008	28.00	8/19/2008	28.71	2.54%
UP	9/8/2008	29.09	9/9/2008	28.12	−3.33%
UP	11/4/2008	20.77	11/10/2008	18.45	−11.17%
UP	11/28/2008	17.17	12/15/2008	16.95	−1.28%
UP	1/2/2009	17.07	1/12/2009	15.83	−7.26%

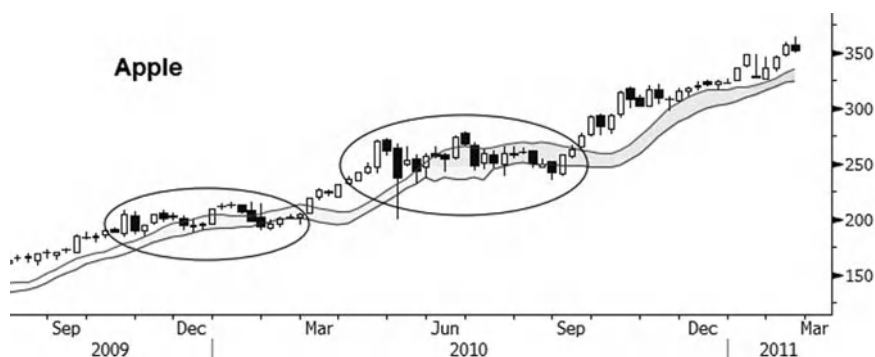
TABLE 3.13 (Continued)

Direction	Start Date	Close	End Date	Close	P/L
UP	3/10/2009	8.87	5/13/2009	12.91	45.55%
UP	6/1/2009	13.86	6/15/2009	13.15	−5.12%
UP	7/14/2009	11.64	8/17/2009	13.36	14.78%
UP	8/24/2009	14.20	9/1/2009	13.34	−6.06%
UP	9/8/2009	14.50	9/30/2009	16.42	13.24%
				<i>Total:</i>	36.88%

Source: Erlanger Chart Room.

to stay above the DMA channel. We are also concerned with the *slope* of the DMA channel. Figure 3.20 and 3.21 are examples of analyzing the DMA Channel Slope as setups.

The steeper the slope of the DMA channel, the more powerful the advance phase, which brings us to the heart of the matter. Stocks generally transit from advance phase to decline phase and back to advance phase—so on and so forth. How the current phase unfolds can set up the tone of the next phase. If an advance phase is mediocre, the next decline phase is more likely to be nasty. If a decline phase is mild (as was the case in the circled areas in Figure 1.4), a setup is established for a relatively stronger move in the next advance phase. The DMA channel's slope helps in monitoring the tone of the current trend.

FIGURE 3.20 Apple with Its Weekly DMA Channel Slope as Setups

Source: Bloomberg LP.

FIGURE 3.21 Google with Its Weekly DMA Channel Slope as Setups

Source: Bloomberg LP.

Erlanger Value Lines

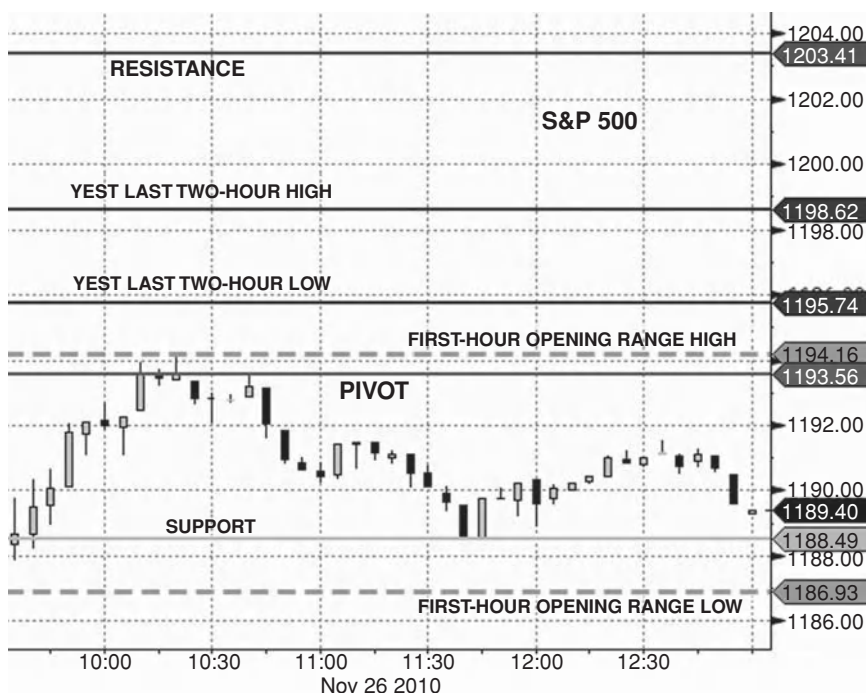
The Erlanger Value Lines (EVL) study is the only Erlanger indicator designed specifically for tracking *intraday* price action. All other Erlanger indicators in Bloomberg can be used in any timeframe. The Erlanger Value Lines can be calculated on stocks, indexes, futures, Forex, and ETFs. Any instrument with intraday activity can be graphed using the Erlanger Value Lines in Bloomberg.

The Erlanger Value Lines highlight those key levels that floor traders focus on during the trading day. The goals as a user of the Erlanger Value Lines are to reveal potential entry and exit targets, and to determine a bias for taking long or short trades.

The three core lines of the Erlanger Value Lines (see Figure 3.22) are resistance, pivot, and support. Each morning these levels are set at the open of trading. Sometimes the range between these levels can be very wide; at other times the range between these levels can be narrow; it depends on the action from the prior day.

Besides plotting resistance, pivot, and support lines, the prior day's final two-hour high and the prior day's final two-hour low are also plotted. It is fascinating that a day later these levels can still become potential intraday resistance or support levels. These should be watched by anyone who is trading the market or a particular stock to try and gain an edge.

Of particular use are the opening range extremes, which are useful in determining bias and also aid in handling large opening gaps. The opening range lines are the dashed lines. This particular chart shows the opening hourly highs and lows, but traders often use shorter periods for opening range tactics, including 1 minute, 5 minute or 30-minute opening ranges. The Erlanger

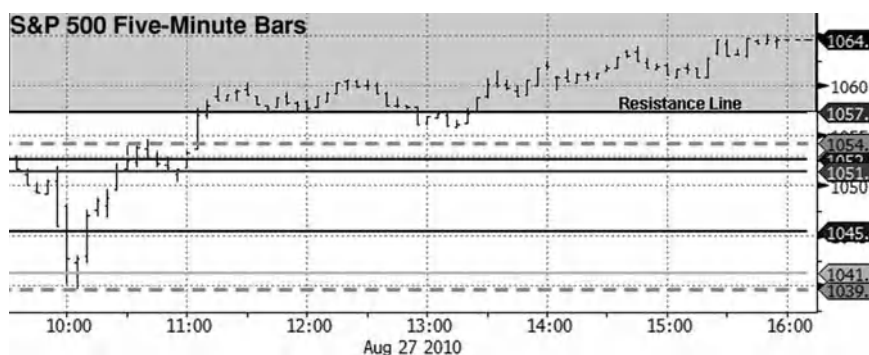
FIGURE 3.22 Erlanger Value Lines

Source: Bloomberg LP.

Studies properties dialog allows you to customize these lines to any opening range value.

The major use of the Erlanger Value lines is the determination of bias for intraday trades as the trading day unfolds. On days when price is trading between the support and resistance value lines, the traders on the floor or those making a market are in control. These are periods when the bias is neutral, and the trader can either refrain from trading, or take both long and short positions using tactics designed for choppy, sideways markets. When price moves above the resistance value line, the bias turns positive, and generally only long trades are taken. When price falls below the support value line, the bias turns negative, and generally only short trades are taken.

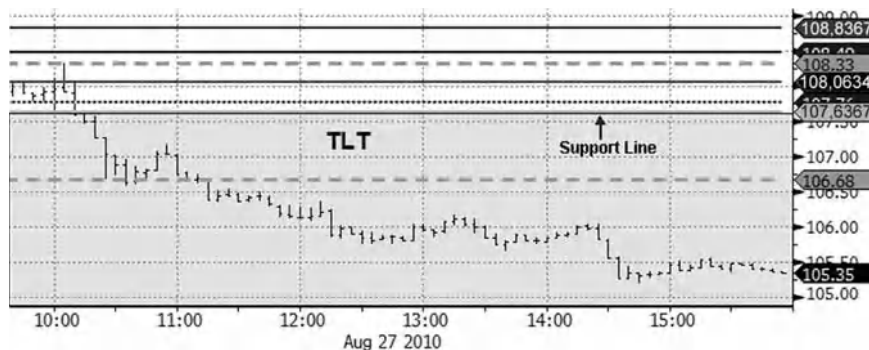
Periods when a stock is trading above the resistance value line, the buyers are in control. The shaded area in Figure 3.23 highlights the range of trading above the resistance value line. The bias is positive at such times, which calls for acting on “buy” triggers only.

FIGURE 3.23 Resistance Value Line

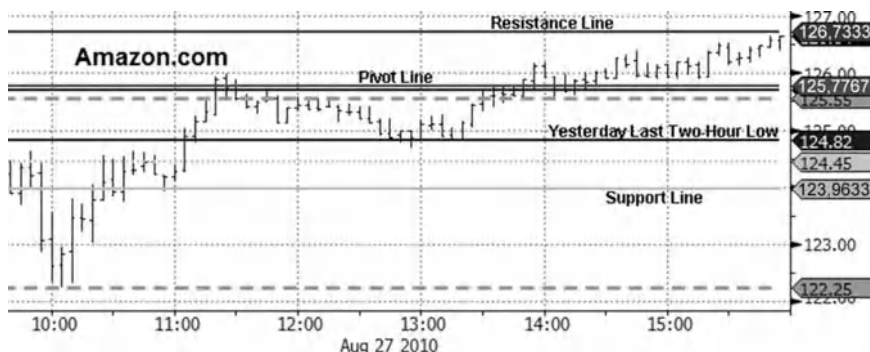
Source: Bloomberg LP.

Periods when price is trading below the support value line, the sellers are clearly in control. The shaded area in Figure 3.24 highlights the range of trading below the support value line. The bias is negative at such times, which calls for acting only on “sell” or “sell short” triggers.

During an occasional trading day, one will sometimes find that a stock breaks support early, but as the day wears on it moves back above support (see Figure 3.25). The sellers have lost control. A stock that breaks the support value line and then repositions itself above the support value line is exhibiting positive recovery action—the sellers had their chance and failed. This is confirmed by a move above the pivot value line. A stock breaking above the

FIGURE 3.24 Support Value Line

Source: Bloomberg LP.

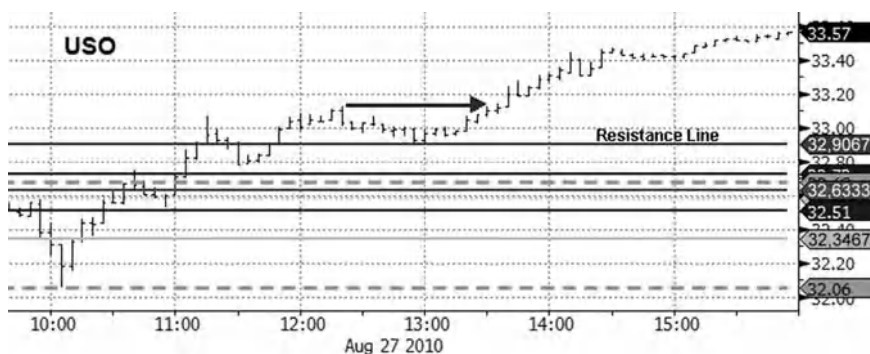
FIGURE 3.25 Value Line Recovery with Move through Pivot Line

Source: Bloomberg LP.

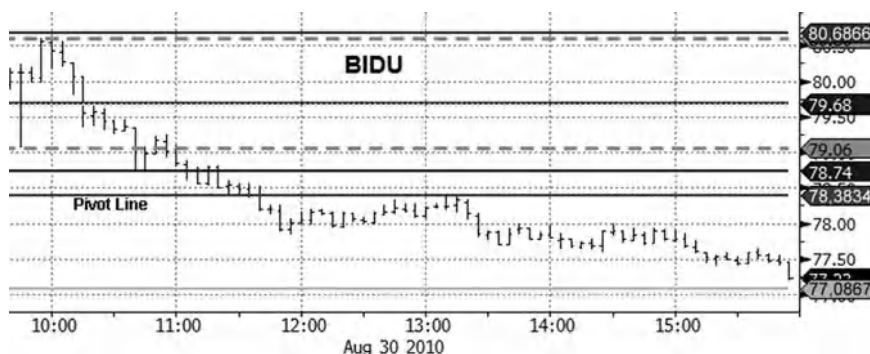
resistance value line but later repositioning itself below the resistance value line is exhibiting negative reversal action—the buyers had their chance and failed.

As was the case in Figure 3.24, most times, once support is broken, the sellers remain in control for the entire day and it makes sense to execute short trades only.

Likewise, when resistance is taken out there is no reason to be a seller; instead, enjoy the ride by executing long trades only. If you were thinking about putting on a short position, it may be better to wait until the current strength plays itself out. Figure 3.26 shows the USO ETF testing its resistance line as support and then rising to a higher reaction high (see arrow in Figure 3.26), after which price rose into the close. Such successfully tested breakouts

FIGURE 3.26 Positive Bias with Move above Resistance Value Line

Source: Bloomberg LP.

FIGURE 3.27 Negative Bias with Test of Pivot Value Line

Source: Bloomberg LP.

are strong patterns, especially because short sellers recognize they are in trouble and are “squeezed” out of their negative bets.

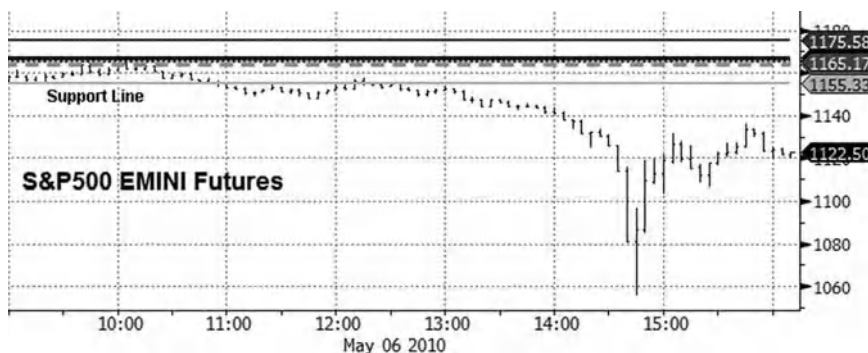
Short-term traders may also attempt to trade off pivot levels. These levels act as targets and triggers for short-term trades. It is uncanny how these levels stop or turn back short-term price swings.

A pivot level that is broken to the downside often indicates a good time to sell or sell short. As shown in Figure 3.27, when the pivot value line is tested as resistance (just after hour 13 in Figure 3.27), long holders recognize they have made a mistake and are squeezed out as they sell out. This adds to the downside impetus.

Conversely, when price breaks out above a pivot level is often a good time to cover a short or to go long (see hour 14 in Figure 3.25).

The factors that influence price action on an intraday basis are often legion. On the odd occasion these factors contribute to a breakdown in the system, as occurred on May 6, 2010, aka “flash-crash” day. Unintended sell orders occurred in part because the day was faring poorly.

In Figure 3.28, the S&P 500 e-mini futures contract is plotted in five-minute intervals for the day of May 6, 2010—the now infamous flash-crash day. The crash portion of the day occurred in the latter portion of the trading session. The day began innocuously enough, until price dipped below the support value line. Price then rallied to test the support value line as resistance, and then fell away to lower lows, which were followed by steady declines into the crash. Our point isn’t that the value lines “predicted” the flash crash. Our point is that when factors, known and unknown, weigh on the price action, a disciplined approach to trading intraday gives the trader a better chance of being on the right side of the market in such situations. Having a disciplined

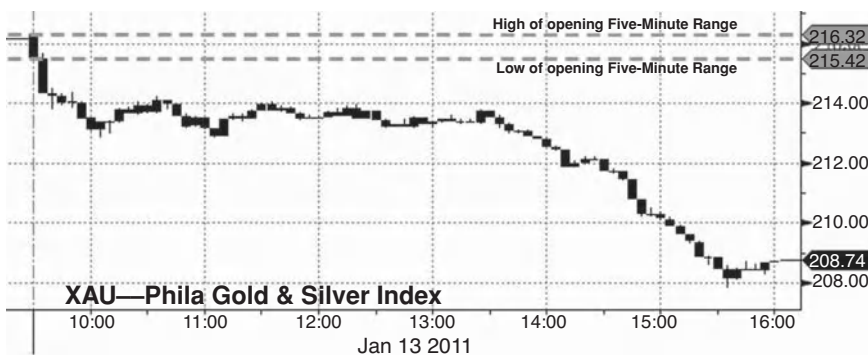
FIGURE 3.28 Flash Crash Followed Move below Support Value Line

Source: Bloomberg LP.

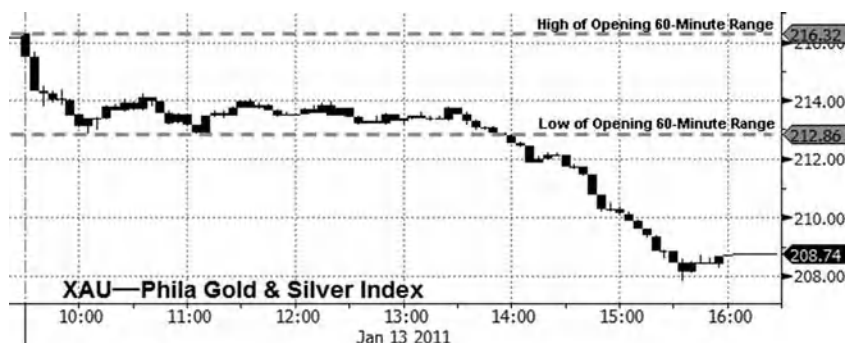
approach with effective metrics goes a long way to surviving, if not benefiting from, days like May 6, 2010.

The Erlanger Value Lines have another set of lines that we use for bias—those opening range value lines. Traders often use the first-hour high and first-hour low as support and resistance levels. If price breaks above the first-hour high, the near-term bias turns positive. If price breaks below the first-hour low, the near-term bias turns negative.

Opening ranges are great bias tools in their own right. As the trading day unfolds, the action usually emerges from the opening five-minute range soon after it is completed. The bias is dictated by which way price emerges from the five-minute range. In Figure 3.29 the price fell below the opening five-minute

FIGURE 3.29 Five-Minute Opening Range as Bias

Source: Bloomberg LP.

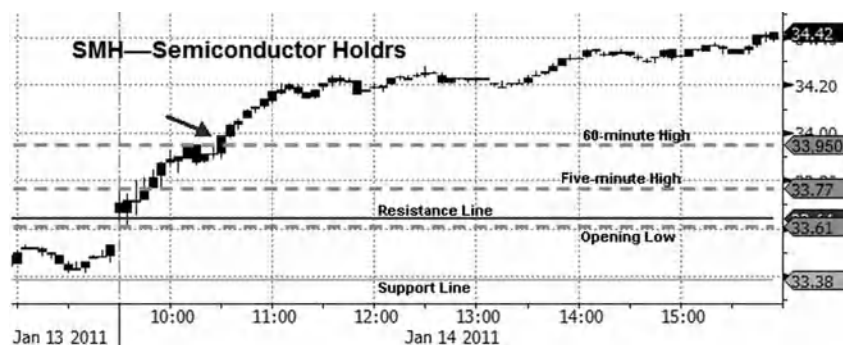
FIGURE 3.30 First-Hour Opening Range as Bias

Source: Bloomberg LP.

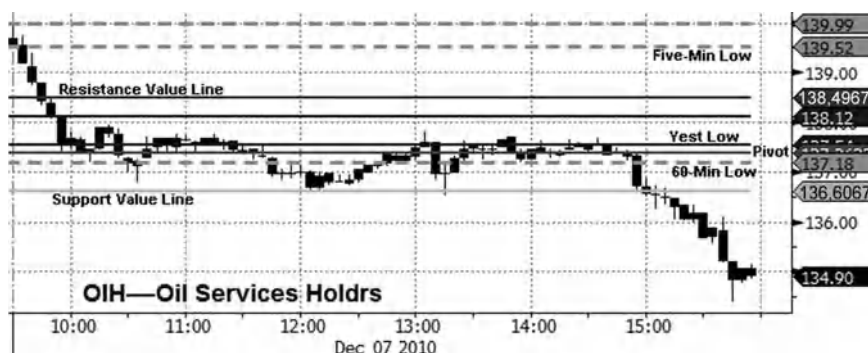
range in the next interval. The rest of the day was weak. This is not always the case. Sometimes price can change direction intraday enough to affect the bias. This is where larger opening ranges come in as a strategic tool.

Figure 3.30 is the same as Figure 3.29, except the range displayed represents the first hour of trading. Figure 3.29 has already told us that the bias is negative because price broke below the five-minute opening range. The low of the 60-minute opening range held for many hours, but eventually price fell below that level. This break below the 60-minute opening range signified a more significant negative bias and began a steady fall into the close.

Opening ranges are especially helpful in dealing with opening gaps. Opening gaps can be problematic because in some cases the market keeps moving in the same direction, but sometimes there can be a reversal. In Figure 3.31, the

FIGURE 3.31 Opening Ranges and Support/Resistance Lines Working Together to Define Bias

Source: Bloomberg LP.

FIGURE 3.32 Clusters of Value Lines Add to Their Significance

Source: Bloomberg LP.

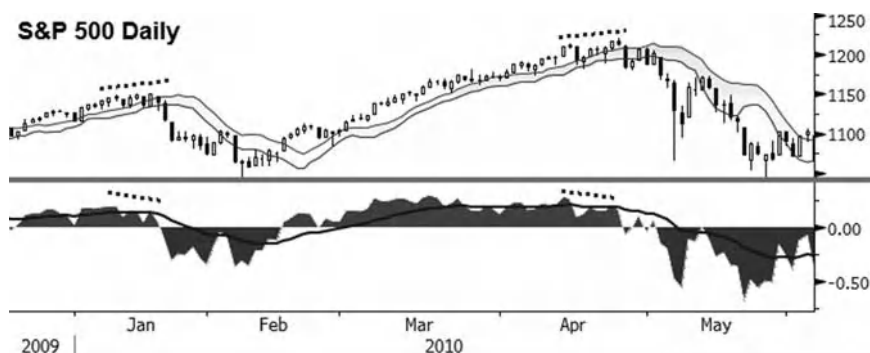
SMH opened with a gap so large the first tick was above that day's resistance value line. Even though that was an instantaneously positive bias indication, markets sometimes stall or fall back after such opens. The five-minute opening range can be extremely helpful in such cases. In Figure 3.31, the SMH rose above the 5-minute and 60-minute opening range highs that were well above the resistance value line—a powerful pattern that reduced the chances of a reversal.

All Erlanger Value Lines can be used as short-term target levels. This is especially true if a few are clustered together. Figure 3.32 shows the early price of the OIH ETF falling into a cluster of value lines that included the prior day's last two-hour low, the pivot value line, and the 60-minute opening low. The OIH wrestled with this cluster until it broke below at 11:40 A.M. In the midafternoon hours the OIH rallied to test this cluster as resistance. Toward the end of the day the OIH fell back and broke below the support value line. This cluster of value lines proved to be a highly significant area of resistance for the day.

Erlanger Rate-of-Change

The Erlanger Rate-of-Change (EROC) is the quintessential momentum indicator that serves as both a setup and a trigger tool. It is specifically designed to show timely divergences that other momentum or rate-of-change indicators omit. It can be used on any time interval. It includes a signal line. The line shading is green when the EROC is above the zero level and red when it is below the zero level.

Typically, there is a performance tradeoff with rate-of-change or momentum oscillators. Shorter period rate-of-change indicators are good triggers because they move in sync with price action when they move above or below

FIGURE 3.33 The EROC Uncovers Negative Divergences

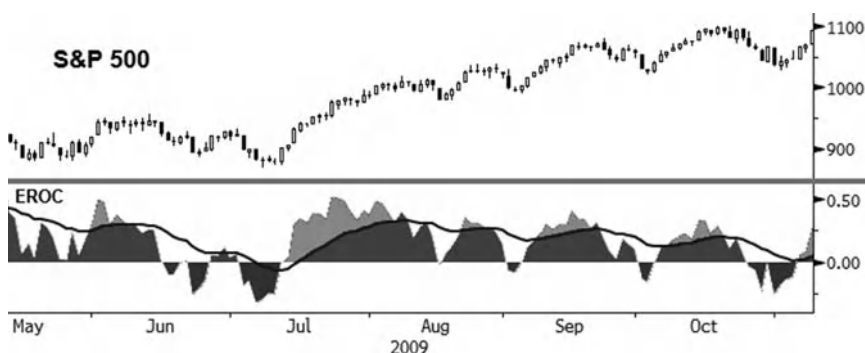
Source: Bloomberg LP.

their zero levels. However, shorter period rate-of-change indicators tend to diverge with price too early to be useful as a setup indicator. Longer period rate-of-change indicators are better setups because they tend to diverge with price just before a change in direction. However, longer period rate-of-change indicators are sluggish to move with price action and therefore are poor triggers. The EROC is designed to behave well as both a setup and a trigger measure.

Setup strategies are patterns in an indicator that typically precede a change in price. The EROC is best used as a setup when it diverges from the price action, especially at extreme levels of the EROC.

For instance, a failure of the EROC to confirm a higher high in price is a setup for a downside reversal. Figure 3.33 shows these negative divergences at the dotted lines. Negative divergences are setups for a turndown in price. They do not guarantee that a turndown will happen; they simply show that upside momentum is dangerously light and likely not able to support the higher high in price. From a strategy point of view, such setups are acted upon when a “sell” trigger is activated.

Trigger strategies are patterns in an indicator that typically point to a time to execute a trade. Triggers are best executed following appropriate setup patterns. There are two ways to use EROC as a trigger. When the EROC moves above the signal line is the standard trigger for a long trade. Another trigger for a long trade is when the EROC moves above the zero level. A particularly strong long trigger is when both occur at the same time. When the EROC moves below the signal line is the standard trigger for a short trade. Another trigger for a short trade is when the EROC moves below the zero level. A particularly strong short trigger is when both occur at the same time. In Figure 3.33, both negative divergences caused the EROC to move below

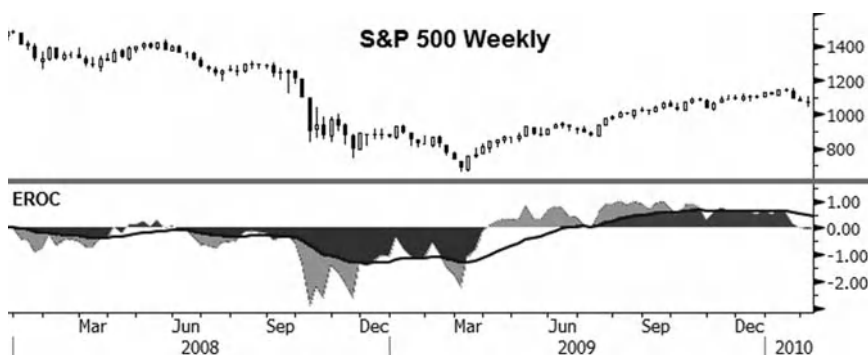
FIGURE 3.34 The EROC Shows the Meaty Trends

Source: Bloomberg LP.

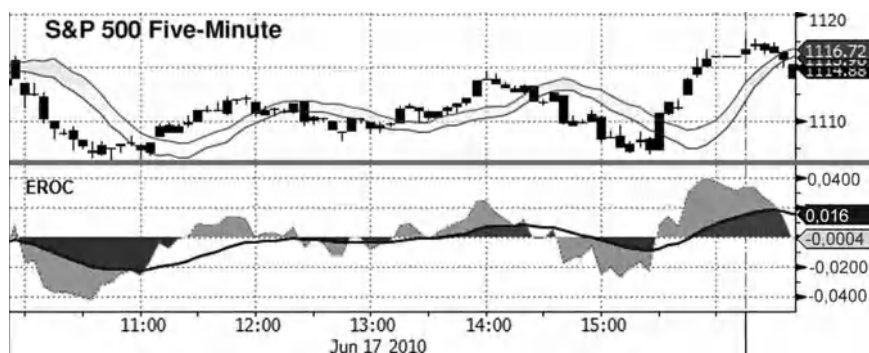
its signal line. The effective trigger to sell was when the EROC sank below its zero level.

The EROC is also useful in identifying the meaty part of trends. The lightly shaded area of the EROC in Figure 3.34 highlights those times when the EROC is both above the zero level and above its signal line. Those times when the EROC fell below its signal line were good times to take profits on long positions, but not necessarily good times to sell short. Why is this?

The EROC also serves as a bias indicator. Figure 3.35 is a weekly chart of the S&P 500 index with its weekly EROC. The “meaty” trend zones are lightly shaded. If we trade the S&P 500 on a daily basis using the EROC, it is logical to use the weekly EROC as a bias. This means that when the

FIGURE 3.35 The EROC Can Act as a Bias Indicator

Source: Bloomberg LP.

FIGURE 3.36 The EROC on a Five-Minute Basis

Source: Bloomberg LP.

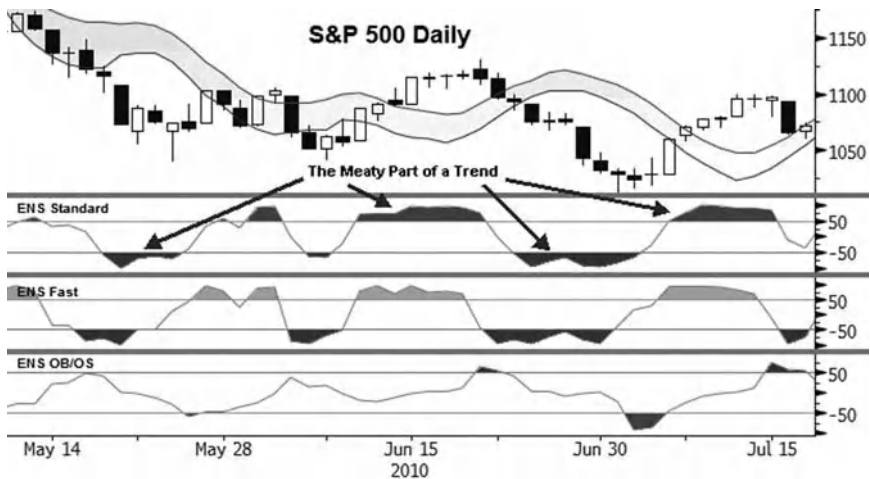
weekly EROC is in a negative pattern, only short-sale triggers are taken on a daily basis (buy signals are ignored). In Figure 3.34, those times when the EROC fell below its signal line were not good times to sell short because the bias of the weekly EROC was positive. When the weekly EROC is in a positive pattern, only buy triggers are taken on a daily basis (sell-short signals are ignored).

A similar scenario can be seen in Figure 3.36, an intraday chart of the S&P 500 index. There were both buy and sell EROC trigger signals. Some worked out well, others not so much. Because the bias (as measured by the daily EROC) happened to be positive, only buy triggers are contemplated.

Erlanger Nantucket Sleighride

The Nantucket Sleighride (NS) is a set of three subindicators: the ENS, the ENS Fast, and the ENS OB/OS. The ENS can act as a bias, setup, and trigger indicator. It is a composite of very sensitive direction measures, and its name is derived from its aggressive nature in following a trend. Wherever the “harpooned whale” goes, the user will be dragged, like the whalers on a Nantucket sleighride, in that direction.

The idea behind the ENS is to highlight the meaty part of a trend as soon as it unfolds (see Figure 3.37). For the ENS and ENS Fast, the meaty part of the trend is highlighted by the time spent in the extreme zones, which are delineated by the indicator’s time spent above 50 (uptrend) or below –50 (downtrend). These are colored green and red, respectively. Once the ENS rises above 50, an uptrend is considered to be underway. The meaty part of

FIGURE 3.37 The ENS Highlights the Meaty Parts of a Trend

Source: Bloomberg LP.

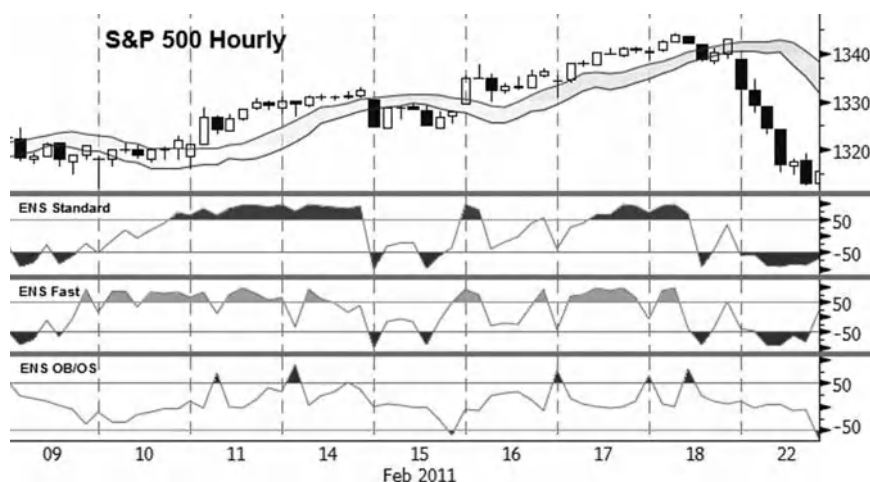
the uptrend is complete when the ENS falls back below 50. Once the ENS falls below -50 , a downtrend is considered to be underway. The meaty part of the downtrend is complete when the ENS moves back above -50 .

The ENS Fast indicator is designed to give the user an early indication of entry into the meaty portion of a trend. Long-entry (short-exit) signals are considered with the first move above 50, with a long-exit (short-entry) at the first move below -50 .

There is a third version of ENS, the ENS OB/OS indicator, which is designed to reflect overbought and oversold levels in a trend.

The oversold moments of the ENS OB/OS indicator, like the one on February 15 in Figure 3.38, is an important setup for an upside reversal of trend. In Figure 3.38 the trigger for that upside reversal occurred late in the day of February 15 when the ENS Fast indicator moved above 50 (the green level in the ENS Fast). The new uptrend was confirmed when the ENS Standard moved above 50 (the green level in the ENS).

The overbought moments of the ENS OB/OS indicator were also an important setup for a downside reversal of trend. The trigger for a downside reversal occurred on February 18 when the ENS Fast indicator moved below -50 (the red level in the ENS Fast). The new downtrend was confirmed when the standard ENS moved below -50 (the red level in the ENS). Generally the ENS confirms the ENS Fast in the next bar.

FIGURE 3.38 The ENS Setups and Triggers on an Intraday Basis

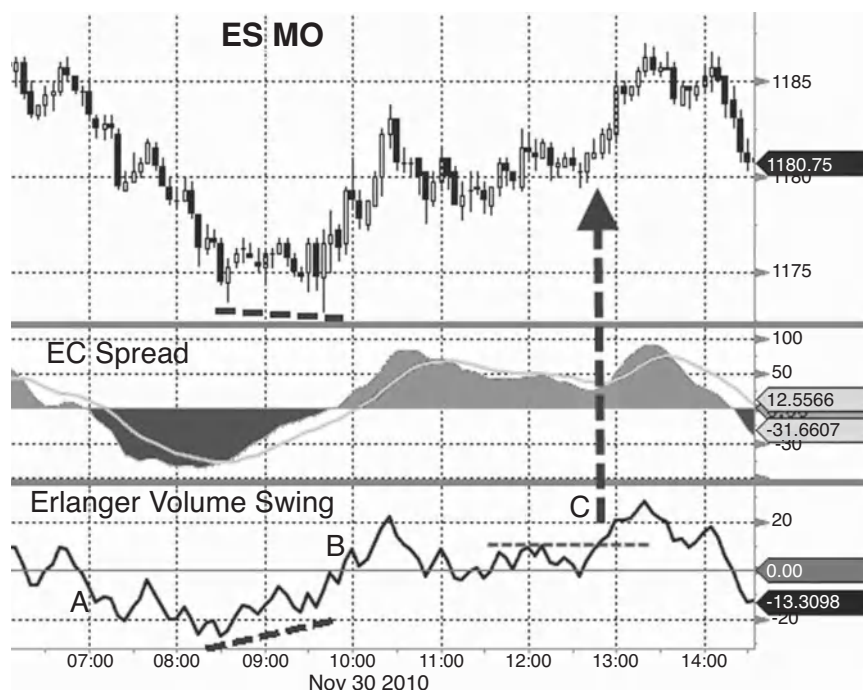
Source: Bloomberg LP.

The ENS can be used as a bias indicator. As is often the case for bias indicators, select an interval larger than the one used for triggers. If triggers are taken using daily data, select the ENS or ENS Fast on a weekly basis as a bias for which side of the market to trade. For example, as long as the ENS Fast on a weekly basis is above 50 (green zone), the bias is for long trades only on trades triggered on a daily basis. As long as the ENS Fast on a weekly basis is below -50 (red zone), the bias is for short trades only on trades triggered on a daily basis. It is also appropriate to use the weekly ENS as a bias indicator and another type of indicator as a trigger, like the daily EROC.

Erlanger Crossover and Crossover Spread

The Erlanger Crossover (EC) indicator is primarily a trigger indicator. Trigger strategies are patterns in an indicator that typically point to a time to execute a trade. The EC uses “true range” technology to eliminate whipsaws while maintaining timely trigger signals.

The trigger mechanism in the Erlanger Crossover is a simple process of buying when the “fast” line (plotted as a solid line) rises above the “slow” line (plotted as a dashed line), and selling (or short selling) when the “fast” line moves below the “slow” line. As is the case with all triggers, it is helpful to have appropriate setup indications in place before acting upon such trigger

FIGURE 3.39 The Erlanger Crossover with Its Signal Line

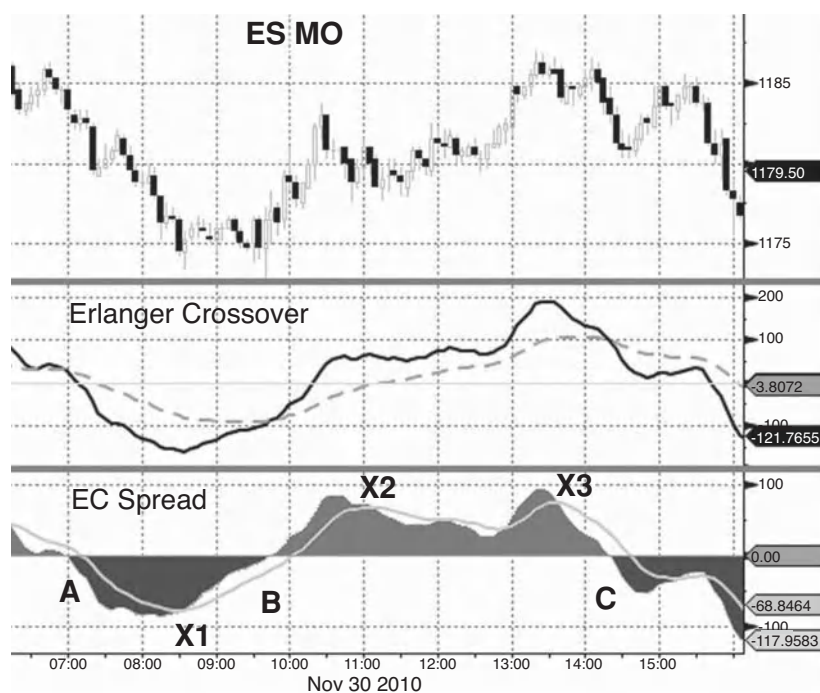
Source: Bloomberg LP.

indicators. In Figure 3.39, the S&P 500 e-mini contract (ES MO) is plotted on a five-minute basis, the Erlanger Crossover turns negative at points A and C, and positive at point B.

Notice that the Erlanger Crossover “fast” line turns direction substantially ahead of the actual crossover. This momentum of the Erlanger Crossover is at the heart of the EC Spread, which is simply the difference between the Erlanger Crossover “fast” and “slow” lines of the Erlanger Crossover.

The EC Spread is a multiuse tool. It has the trigger information contained in the Erlanger Crossover, setup patterns that often precede price direction changes, and is a trader’s tool for money management.

The EC Spread also has its own signal line that acts to identify clear changes in the direction of the EC Spread (i.e., the momentum of the Erlanger Crossover). The key indications of the EC Spread occur when the EC Spread moves through its signal line, and also when the EC Spread moves above or below its zero level. The latter is, of course, another way of depicting

FIGURE 3.40 The EC Spread Measures the Momentum of the Erlanger Crossover

Source: Bloomberg LP.

crossovers of the Erlanger Crossover, and as such is a trigger mechanism. The movement of the EC Spread through its signal line is an early warning that suggests a trend change in price. This use of the signal line is a setup situation, but it also serves as a useful money management tool. In Figure 3.40, point X1 shows an upturn of the EC Spread through its signal line—a good time to exit, or pare down a short position. As a typical money management process, traders look for an early signal to take 50 percent of a position off of the table, and another signal to close out the entire position. In this case, point B could be the latter and it also serves as an entry trigger for a long trade. Point X2 serves as a money management signal to sell 50 percent of a long position placed at point B, and either point X3 or C could close out the entire long position.

Erlanger Volume Swing

The Erlanger Volume Swing (EVS) index is a ratio between up and down volume. In the EVS, the total volume for a given day is divided into two portions

according to the position of the close between the day's true high—the higher of today's high and yesterday's low—and the true low—the lower of today's low and yesterday's high. True high and true low eliminate the problems of limit days and more suitably distribute volume on gap days. The separate up-volume and down-volume are then smoothed exponentially.

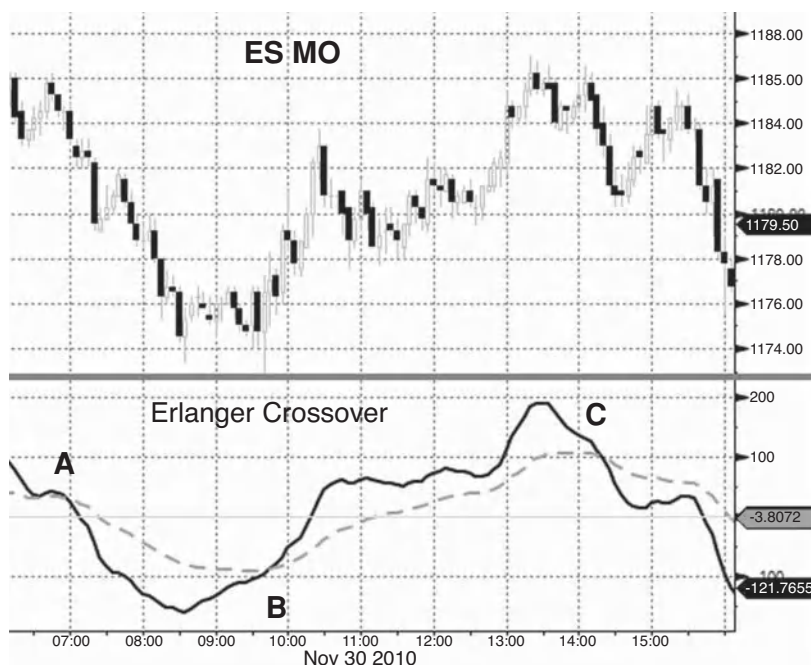
Setup strategies are patterns in an indicator that typically precede a change in price. The Erlanger Volume Swing index is an oscillator. As such, the user looks for higher highs and lower lows in price to be confirmed by the EVS. When nonconfirmations occur, trend changes are more likely forthcoming. For instance, a failure of the EVS to confirm a higher high in price is a setup for a downside reversal. When the EVS fails to confirm a lower low in price, a setup for a rally reversal is in order. Once a setup is observed, the EVS can also be used as a trigger into a trade.

Trigger strategies are patterns in an indicator that typically point to a time to execute a trade. Triggers are best executed following appropriate setup patterns. An EVS trigger for a long trade is made when the EVS moves above the zero level. A trigger for a short trade is made when the EVS moves below the zero level.

In Figure 3.41, we have added the EVS to the chart of the S&P 500 e-mini futures contract. At point “A,” the EVS triggers into a sell position by dipping below the zero line—well ahead of the EC Spread. It's a good idea to use a combination of trigger indicators, as is depicted here. One is not necessarily better than the other. The value is that these are representations of different criteria, so when they agree, a case for the signal is therefore more valid. Point “B” is a buy signal in the EVS that slightly lags the buy signal in the EC Spread. Note the positive divergence of the EVS with price (dashed lines) leading up to point “B.” At point “C,” the EVS broke out to a higher reaction high before the market, indicating expanding positive volume ahead of the price action.

Erlanger Put/Call Ratio

Tracking Options Ratios is designed to highlight the prevailing sentiment of options traders, and as such falls under the category of a setup indicator. Setup strategies are patterns in an indicator that typically precede a change in price. Bullish or bearish sentiment tends to become extreme after extended price action. For example, a lengthy uptrend will engender widespread enthusiasm. The rub is that when most have entered the market, there are fewer on the sidelines to keep the trend going by joining the crowd. This overcommitted

FIGURE 3.41 The Erlanger Volume Swing Helps to Confirm Other Signals

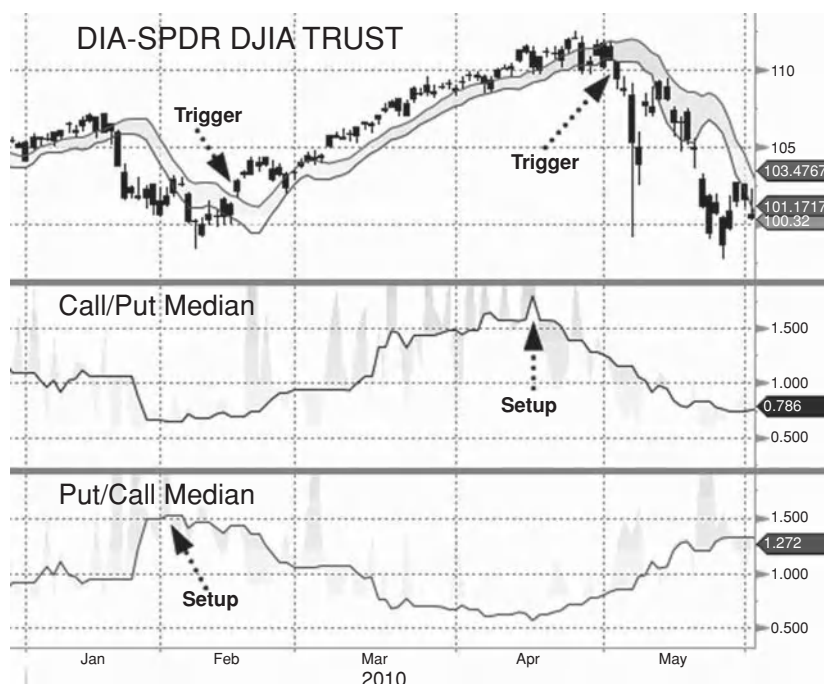
Source: Bloomberg L.P.

state of bullish participation in the marketplace often sets up the price action for a reversal; in the case in Figure 3.42, it is a downturn.

The key features of the Erlanger Options Ratios are the measurement of volume-weighted values of all options contracts, and that they are computed on a median basis. We also plot these ratios on a put/call and a call/put ratio basis. This better shows the peaks and valleys of put and call activity at extremes. In Figure 3.42, the Diamonds Trust ETF (DIA) is plotted with the Call/Put Median and the Put/Call Median. In February, an advance in price was set up by a high Put/Call Median. The advance was triggered when the price action rose above its DMA channel. The big story in Figure 3.42 was what happened later in April and May. The Call/Put Median rose to very high levels in April, setting up the DIA for a decline that was triggered in early May with the DIA's drop below its DMA channel. Like all sentiment indicators, we always use a price study to activate the sentiment setup. For the options ratios, we typically use the daily DMA channel as a trigger.

The Erlanger Options studies can be applied to individual stocks. The following example looks at Best Buy Co., Inc.

FIGURE 3.42 The Erlanger Options Ratios Measure Options Trading on a 10-Day Median Basis

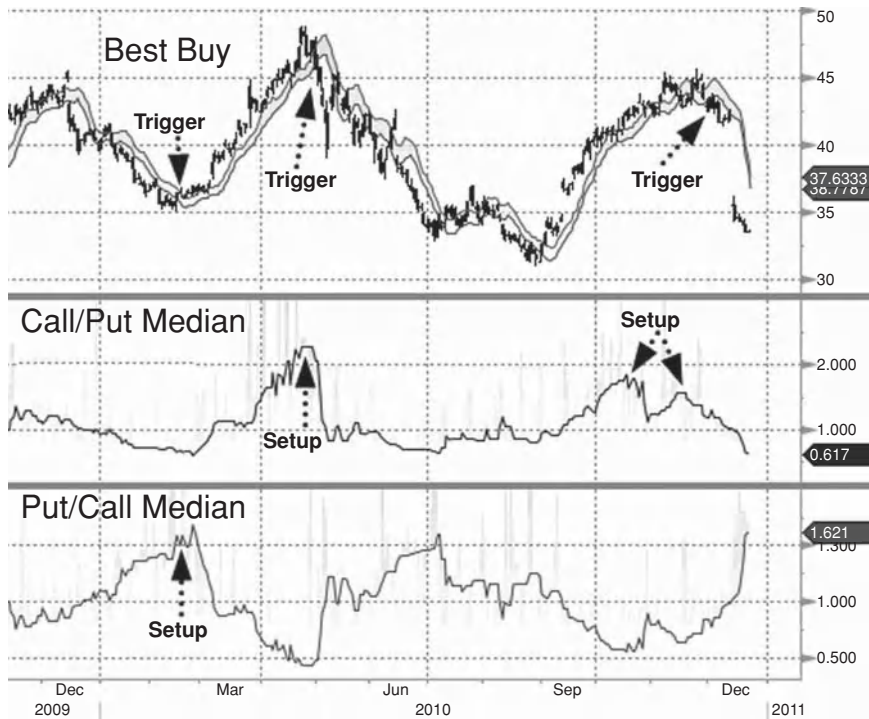


Source: Bloomberg LP.

Figure 3.43 shows how high the Erlanger Put/Call Median rose in mid-March, 2010. The prior decline in price encouraged excessive negative betting on the part of the options traders. This was a setup for a rally that was triggered by the price of Best Buy (BBY) rising above its DMA channel. It wasn't until the options traders changed allegiance and became super-bullish in late April that the price action wavered. This interplay between sentiment and price action is at the heart of our squeeze-play philosophy. Trading setups and triggers such as these that are in line with the big-picture bias is a strategy that, by design, is a logical one that adds value to the decision-making process.

Erlanger Trend Direction

Erlanger Trend Direction (a proprietary indicator of Phil Erlanger Research) is used to measure the coincident trend underway. There are four "states" (see Figure 3.44) to this indicator: uptrend (green above the zero line), correction or pullback within an uptrend (red above the zero line), downtrend (red below

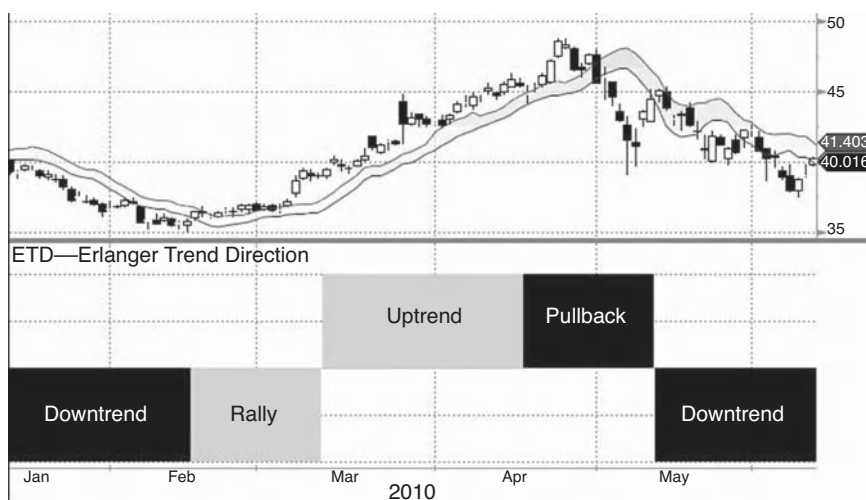
FIGURE 3.43 Erlanger Options Patterns Are Setups for Contrary Moves

Source: Bloomberg LP.

the zero line), and correction or rally within a downtrend (green below the zero line).

It might help to think of the trend direction mechanism as a coincident (to slightly lagging) indicator. Traders/investors have many reasons to get long or short a position, but if the trend direction moves contrary to expectations, it is time to reevaluate. It is not uncommon to see changes from advance to decline phase on shorter timeframes while the larger trend direction remains unchanged. So, the hourly can go through a number of cycles while the daily remains unchanged. The daily can go through a number of cycles while the weekly remains unchanged. Each smaller cycle is a test of the next larger cycle.

The trend direction indicator is best used in conjunction with (and to confirm) other indicators. Waiting for the trend indicator to agree with the DMA channel can help to minimize whipsaws.

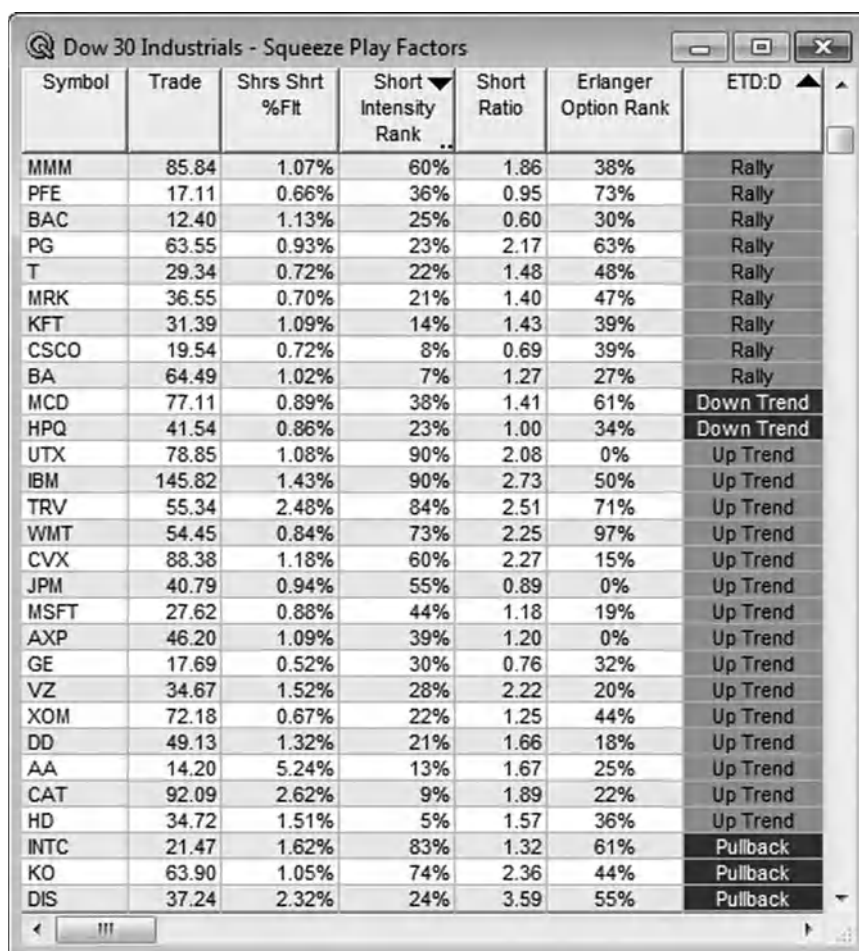
FIGURE 3.44 Erlanger Trend Directions' Four Signals

Source: Bloomberg LP.

Monitoring

In the Erlanger Chart Room program powered by Bloomberg (www.erlangerchartroom.com), users can track their positions using key metrics from the available Erlanger Studies. Monitoring is a valuable process that enables the portfolio manager to follow key technical metrics as they unfold in real time. It is not possible to effectively perceive all the pertinent charts for a universe or portfolio of securities on a real-time basis. By monitoring the progress of key technical patterns security by security in a quote sheet format, it becomes easy to identify their progress and change in status.

In Figure 2.45, the columns in the quote sheet are designed to highlight short and long squeeze plays by tracking key sentiment setup situations such as shorts as a percentage of float, short selling intensity, Erlanger Short Ratio (current short interest divided by the 12-month average of average daily volume), and the Erlanger Option Rank (the higher the Option Rank, the more dominant put activity is to call activity). The key to these setup indicators is to identify excess in bullish or bearish sentiment. The last column is the Erlanger Trend Direction (ETD), which identifies the trend underway—in this case on a daily basis. For a short squeeze situation, we are looking for those stocks that have an excess of negative sentiment but are in an uptrend—these are situations where the market is telling us that the negative bettors are

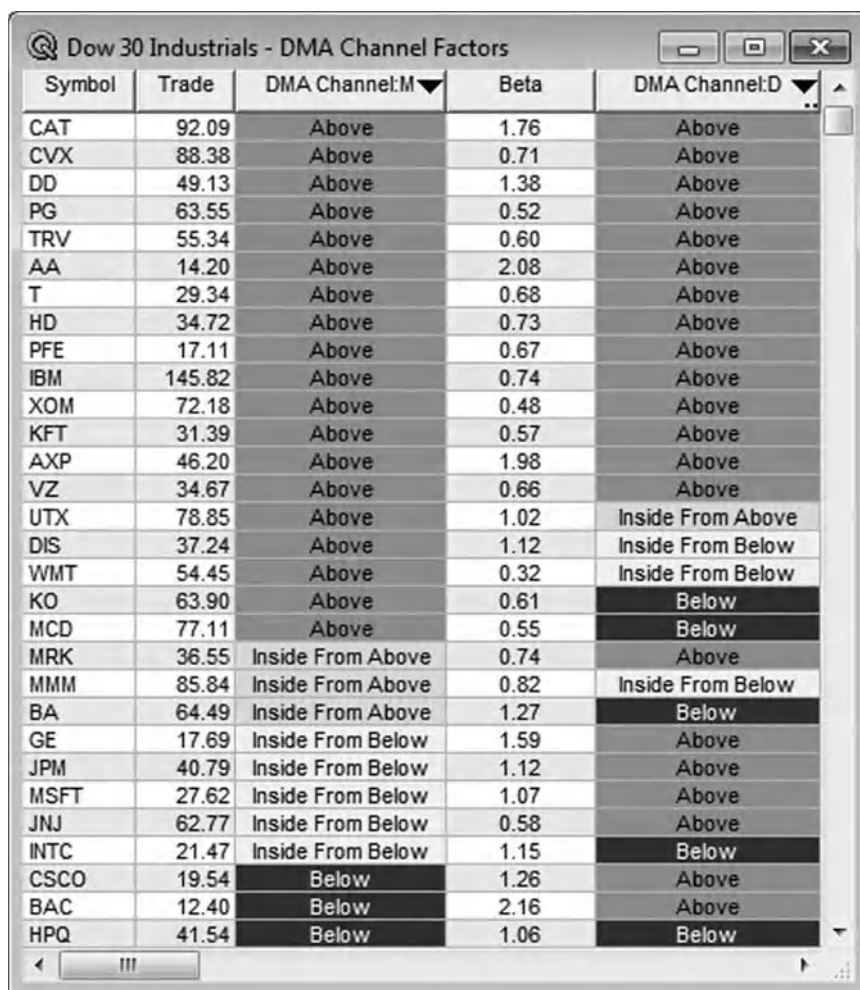
FIGURE 3.45 Monitoring Squeeze Play Factors


Symbol	Trade	Shrs Shrt %Flt	Short Intensity Rank	Short Ratio	Erlanger Option Rank	ETD:D
MMM	85.84	1.07%	60%	1.86	38%	Rally
PFE	17.11	0.66%	36%	0.95	73%	Rally
BAC	12.40	1.13%	25%	0.60	30%	Rally
PG	63.55	0.93%	23%	2.17	63%	Rally
T	29.34	0.72%	22%	1.48	48%	Rally
MRK	36.55	0.70%	21%	1.40	47%	Rally
KFT	31.39	1.09%	14%	1.43	39%	Rally
CSCO	19.54	0.72%	8%	0.69	39%	Rally
BA	64.49	1.02%	7%	1.27	27%	Rally
MCD	77.11	0.89%	38%	1.41	61%	Down Trend
HPQ	41.54	0.86%	23%	1.00	34%	Down Trend
UTX	78.85	1.08%	90%	2.08	0%	Up Trend
IBM	145.82	1.43%	90%	2.73	50%	Up Trend
TRV	55.34	2.48%	84%	2.51	71%	Up Trend
WMT	54.45	0.84%	73%	2.25	97%	Up Trend
CVX	88.38	1.18%	60%	2.27	15%	Up Trend
JPM	40.79	0.94%	55%	0.89	0%	Up Trend
MSFT	27.62	0.88%	44%	1.18	19%	Up Trend
AXP	46.20	1.09%	39%	1.20	0%	Up Trend
GE	17.69	0.52%	30%	0.76	32%	Up Trend
VZ	34.67	1.52%	28%	2.22	20%	Up Trend
XOM	72.18	0.67%	22%	1.25	44%	Up Trend
DD	49.13	1.32%	21%	1.66	18%	Up Trend
AA	14.20	5.24%	13%	1.67	25%	Up Trend
CAT	92.09	2.62%	9%	1.89	22%	Up Trend
HD	34.72	1.51%	5%	1.57	36%	Up Trend
INTC	21.47	1.62%	83%	1.32	61%	Pullback
KO	63.90	1.05%	74%	2.36	44%	Pullback
DIS	37.24	2.32%	24%	3.59	55%	Pullback

Source: Erlanger Chart Room.

wrong. The columns in Figure 3.45 are sorted first by ETD and second by Short Intensity. Stocks UTX and IBM are in a short squeeze situation. HPQ is in a long squeeze situation because its short intensity is at a low 23 percent (indicating little negative betting, hence too much bullishness) and its trend (ETD) is down—thus the HPQ bulls are feeling the squeeze pressure of lower price action.

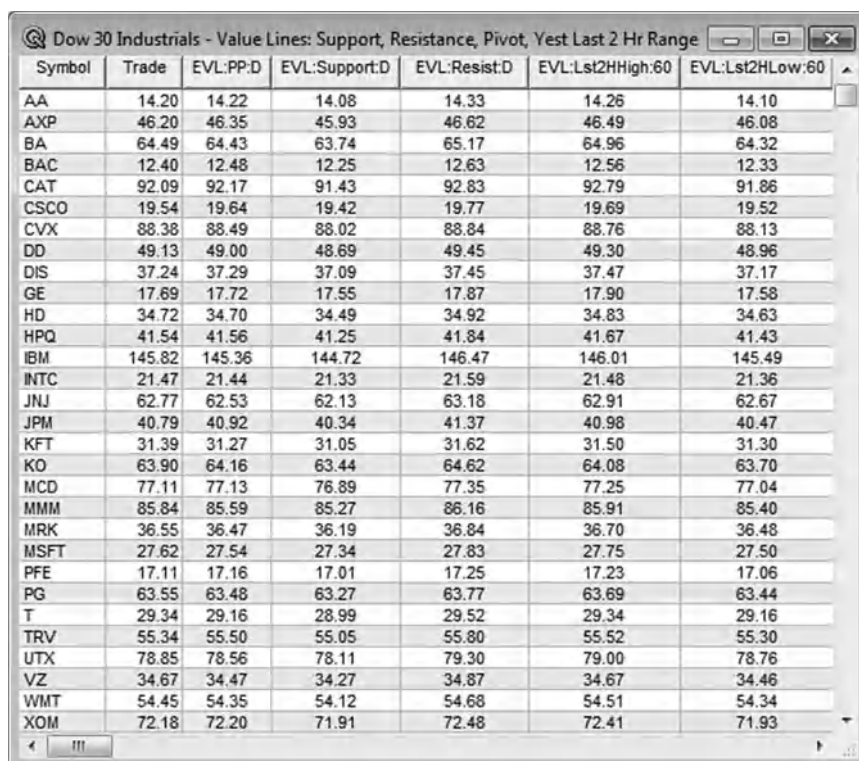
Earlier in this chapter we discussed the merits of using the monthly DMA channel as a bias for trades triggered using daily DMA channels. This was

FIGURE 3.46 Dow 30 Industrial Stocks—DMA Channel Factors


Symbol	Trade	DMA Channel:M	Beta	DMA Channel:D
CAT	92.09	Above	1.76	Above
CVX	88.38	Above	0.71	Above
DD	49.13	Above	1.38	Above
PG	63.55	Above	0.52	Above
TRV	55.34	Above	0.60	Above
AA	14.20	Above	2.08	Above
T	29.34	Above	0.68	Above
HD	34.72	Above	0.73	Above
PFE	17.11	Above	0.67	Above
IBM	145.82	Above	0.74	Above
XOM	72.18	Above	0.48	Above
KFT	31.39	Above	0.57	Above
AXP	46.20	Above	1.98	Above
VZ	34.67	Above	0.66	Above
UTX	78.85	Above	1.02	Inside From Above
DIS	37.24	Above	1.12	Inside From Below
WMT	54.45	Above	0.32	Inside From Below
KO	63.90	Above	0.61	Below
MCD	77.11	Above	0.55	Below
MRK	36.55	Inside From Above	0.74	Above
MMM	85.84	Inside From Above	0.82	Inside From Below
BA	64.49	Inside From Above	1.27	Below
GE	17.69	Inside From Below	1.59	Above
JPM	40.79	Inside From Below	1.12	Above
MSFT	27.62	Inside From Below	1.07	Above
JNJ	62.77	Inside From Below	0.58	Above
INTC	21.47	Inside From Below	1.15	Below
CSCO	19.54	Below	1.26	Above
BAC	12.40	Below	2.16	Above
HPQ	41.54	Below	1.06	Below

Source: Erlanger Chart Room.

especially valid for high beta stocks. In Figure 3.46, a quote sheet is set up for the Dow 30 issues with the first sort on the monthly DMA channel column and a secondary sort on the daily column. There is also a column for beta so the portfolio manager can focus on higher beta issues. With one simple quote sheet, the portfolio manager can identify those issues that are in a positive or negative bias situation, filtering for beta—a process that we identified as a

FIGURE 3.47 Dow 30 Industrial Stocks—Erlanger Value Line Factors


Symbol	Trade	EVL:PP:D	EVL:Support:D	EVL:Resist:D	EVL:Lst2HHigh:60	EVL:Lst2HLow:60
AA	14.20	14.22	14.08	14.33	14.26	14.10
AXP	46.20	46.35	45.93	46.62	46.49	46.08
BA	64.49	64.43	63.74	65.17	64.96	64.32
BAC	12.40	12.48	12.25	12.63	12.56	12.33
CAT	92.09	92.17	91.43	92.83	92.79	91.86
CSCO	19.54	19.64	19.42	19.77	19.69	19.52
CVX	88.38	88.49	88.02	88.84	88.76	88.13
DD	49.13	49.00	48.69	49.45	49.30	48.96
DIS	37.24	37.29	37.09	37.45	37.47	37.17
GE	17.69	17.72	17.55	17.87	17.90	17.58
HD	34.72	34.70	34.49	34.92	34.83	34.63
HPQ	41.54	41.56	41.25	41.84	41.67	41.43
IBM	145.82	145.36	144.72	146.47	146.01	145.49
INTC	21.47	21.44	21.33	21.59	21.48	21.36
JNJ	62.77	62.53	62.13	63.18	62.91	62.67
JPM	40.79	40.92	40.34	41.37	40.98	40.47
KFT	31.39	31.27	31.05	31.62	31.50	31.30
KO	63.90	64.16	63.44	64.62	64.08	63.70
MCD	77.11	77.13	76.89	77.35	77.25	77.04
MMM	85.84	85.59	85.27	86.16	85.91	85.40
MRK	36.55	36.47	36.19	36.84	36.70	36.48
MSFT	27.62	27.54	27.34	27.83	27.75	27.50
PFE	17.11	17.16	17.01	17.25	17.23	17.06
PG	63.55	63.48	63.27	63.77	63.69	63.44
T	29.34	29.16	28.99	29.52	29.34	29.16
TRV	55.34	55.50	55.05	55.80	55.52	55.30
UTX	78.85	78.56	78.11	79.30	79.00	78.76
VZ	34.67	34.47	34.27	34.87	34.67	34.46
WMT	54.45	54.35	54.12	54.68	54.51	54.34
XOM	72.18	72.20	71.91	72.48	72.41	71.93

Source: Erlanger Chart Room.

superior strategy. Taking long positions in positive bias situations with those issues marked as “above” the daily DMA channel is now a snap. Similarly, finding short positions in negative bias situations with those issues marked as “below” the daily DMA channel is just as easy.

It is almost an impossibility to track the value lines of 30 securities by perusing charts, even with a real-time system. However, quote sheets that not only identify the value line levels, but also highlight when the price action moves through the key levels, can make this effort a reality. At the beginning of the trading day, the table in Figure 3.47 shows the support, resistance, and pivot Erlanger Value Lines, along with the prior day’s last two-hour high and low.

As Figure 3.48 shows, as the trading day unfolds, the cells for the key Erlanger Value Lines “support” and “resistance” change color if price has moved through their values for the day. Knowing which stocks have moved

FIGURE 3.48 Dow 30 Industrial Stocks—Erlanger Value Line Factors Change during the Trading Session

Symbol	Trade	EVL:PP:D	EVL:Support:D	EVL:Resist:D	EVL:Lst2HHHigh:60	EVL:Lst2HLLow:60
AA	14.11	14.22	14.08	14.33	14.26	14.10
AXP	46.55	46.35	45.93	46.62	46.49	46.08
BA	64.53	64.43	63.74	65.17	64.96	64.32
BAC	12.52	12.48	12.25	12.63	12.56	12.33
CAT	94.21	92.17	91.43	92.83	92.79	91.86
CSCO	19.59	19.64	19.42	19.77	19.69	19.52
CVX	88.41	88.49	88.02	88.84	88.76	88.13
DD	49.38	49.00	48.69	49.45	49.30	48.96
DIS	37.16	37.29	37.09	37.45	37.47	37.17
GE	17.54	17.72	17.55	17.87	17.90	17.58
HD	34.84	34.70	34.49	34.92	34.83	34.63
HPQ	41.38	41.56	41.25	41.84	41.67	41.43
IBM	145.25	145.36	144.72	146.47	146.01	145.49
INTC	21.39	21.44	21.33	21.59	21.46	21.36
JNJ	62.63	62.53	62.13	63.18	62.91	62.67
JPM	40.83	40.92	40.34	41.37	40.98	40.47
KFT	31.37	31.27	31.05	31.62	31.50	31.30
KO	64.74	64.16	63.44	64.62	64.08	63.70
MCD	77.10	77.13	76.89	77.35	77.25	77.04
MMM	86.87	85.59	85.27	86.16	85.91	85.40
MRK	36.69	36.47	36.19	36.84	36.70	36.48
MSFT	27.90	27.54	27.34	27.83	27.75	27.50
PFE	17.18	17.16	17.01	17.25	17.23	17.06
PG	63.70	63.48	63.27	63.77	63.69	63.44
T	29.42	29.16	28.99	29.52	29.34	29.16
TRV	55.32	55.50	55.05	55.80	55.52	55.30
UTX	79.28	78.56	78.11	79.30	79.00	78.76
VZ	34.72	34.47	34.27	34.87	34.67	34.46
WMT	54.10	54.35	54.12	54.68	54.51	54.34
XOM	72.10	72.20	71.91	72.48	72.41	71.93

Source: Erlanger Chart Room.

below their support level (colored in red, symbols GE, WMT) and those that have moved above their resistance level (colored in green, symbols CAT, KO, MMM, and MSFT) allow the trader to focus in on securities on the move. This is especially pertinent when the market itself is having a quiet day—something extraordinarily positive is boosting a stock when it rises above its resistance level when the market is flat. Conversely, something extraordinarily negative is weighing on a stock when it falls below its support level when the market is flat.

Opening ranges are an effective bias tool for short-term traders. By tracking the opening ranges of a universe of stocks that traders favor for short-term trading, the trader can instantly identify those stocks that are positively and negatively biased in the first few minutes of trading. Figure 3.49 shows that as the minutes unfold from the opening bell, the trader can see those stocks

FIGURE 3.49 Dow 30 Industrial Stocks—Tracking the Opening Ranges

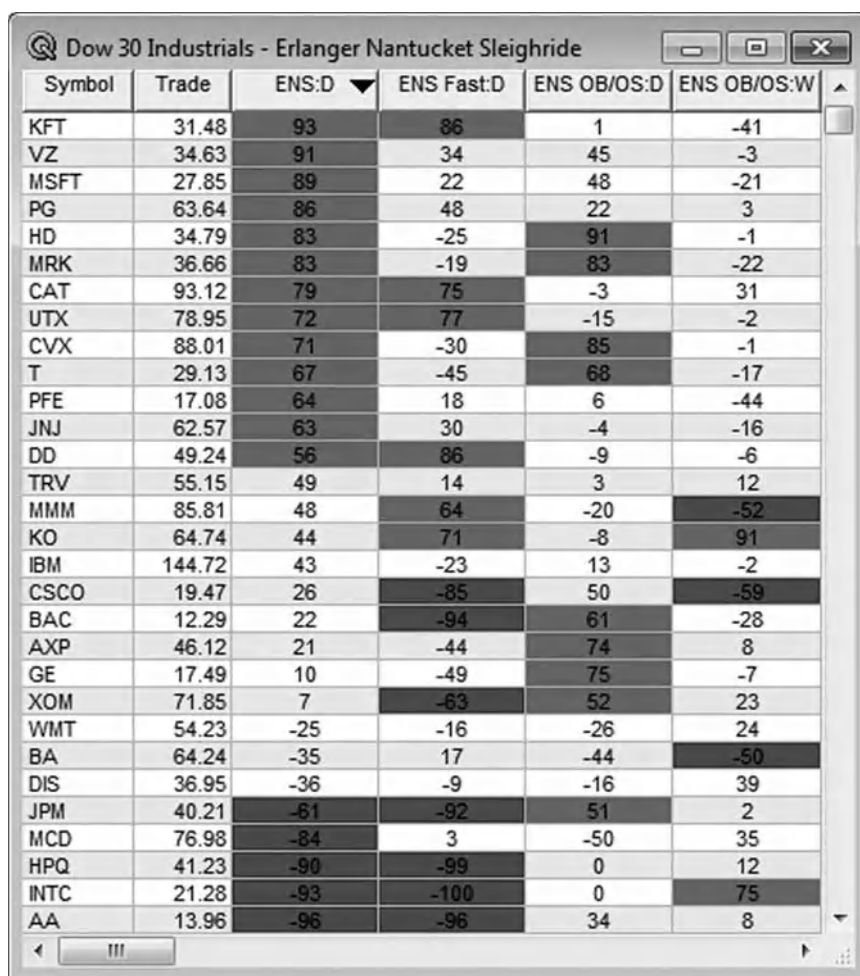
Symbol	Trade	EVL:OpExtHigh:5	EVL:OpExtLow:5	EVL:OpExtHigh:60	EVL:OpExtLow:60
AA	14.11	14.19	14.09	14.20	14.08
AXP	46.55	46.34	45.96	46.78	45.96
BA	64.53	64.54	64.20	64.61	64.20
BAC	12.52	12.45	12.34	12.54	12.34
CAT	94.15	93.88	92.66	93.97	92.66
CSCO	19.56	19.62	19.56	19.67	19.56
CVX	88.40	88.49	88.00	88.56	88.00
DD	49.37	49.17	49.02	49.42	49.02
DIS	37.12	37.37	37.22	37.37	37.15
GE	17.53	17.61	17.58	17.64	17.54
HD	34.83	34.69	34.55	35.05	34.55
HPQ	41.39	41.50	41.37	41.50	41.22
IBM	145.22	145.72	145.04	145.72	145.04
INTC	21.38	21.50	21.40	21.50	21.40
JNJ	62.62	63.11	62.82	63.16	62.80
JPM	40.73	40.66	40.51	41.00	40.51
KFT	31.36	31.39	31.25	31.41	31.24
KO	64.75	63.90	63.75	64.50	63.75
MCD	77.08	77.45	77.10	77.45	76.92
MMM	86.89	86.16	85.70	86.96	85.70
MRK	36.71	36.70	36.40	36.99	36.40
MSFT	27.91	27.65	27.58	27.77	27.54
PFE	17.15	17.18	17.07	17.28	17.07
PG	63.73	63.74	63.60	63.74	63.60
T	29.42	29.38	29.30	29.56	29.30
TRV	55.45	55.43	55.29	55.53	55.29
UTX	79.18	78.75	78.58	79.04	78.58
VZ	34.61	34.65	34.50	34.82	34.50
WMT	54.12	54.34	54.17	54.34	54.14
XOM	72.06	72.13	71.93	72.13	71.79

Source: Erlanger Chart Room.

strong enough to rise above their 5-minute and 60-minute opening highs (in this case, CAT, KO, MSFT, and UTX). The trader can also see those stocks weak enough to fall below their 5-minute and 60-minute opening lows (in this case, DIS, GE, INTC, JNJ, and WMT). Additionally, tracking universes like the Dow 30 Industrials can give the portfolio manager a unique insight as to how a particular day's trading is unfolding. Where is the strength? Where is the weakness? How broad is the strength or weakness? These questions can be answered by a quick glance at a quote sheet similar to the one in Figure 3.50.

Monitoring quote sheets with Erlanger studies can also highlight setups and triggers. In Figure 3.50, all the ENS cells are colored when they reach values above 50 or below -50. When the ENS is above 50, a triggered uptrend

FIGURE 3.50 Dow 30 Industrial Stocks—Tracking the Erlanger Nantucket Sleighride Signals

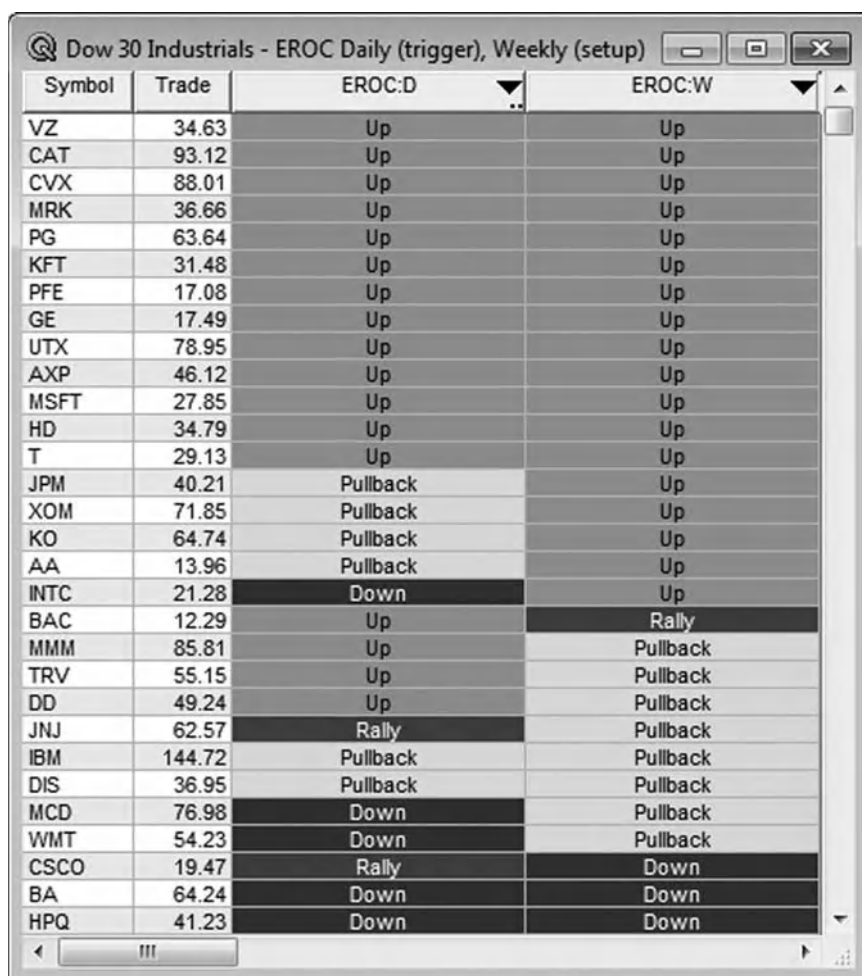


Symbol	Trade	ENS:D ▼	ENS Fast:D	ENS OB/OS:D	ENS OB/OS:W ▲
KFT	31.48	93	86	1	-41
VZ	34.63	91	34	45	-3
MSFT	27.85	89	22	48	-21
PG	63.64	86	48	22	3
HD	34.79	83	-25	91	-1
MRK	36.66	83	-19	83	-22
CAT	93.12	79	75	-3	31
UTX	78.95	72	77	-15	-2
CVX	88.01	71	-30	85	-1
T	29.13	67	-45	68	-17
PFE	17.08	64	18	6	-44
JNJ	62.57	63	30	-4	-16
DD	49.24	56	86	-9	-6
TRV	55.15	49	14	3	12
MMM	85.81	48	64	-20	-52
KO	64.74	44	71	-8	91
IBM	144.72	43	-23	13	-2
CSCO	19.47	26	-85	50	-59
BAC	12.29	22	-94	61	-28
AXP	46.12	21	-44	74	8
GE	17.49	10	-49	75	-7
XOM	71.85	7	-63	52	23
WMT	54.23	-25	-16	-26	24
BA	64.24	-35	17	-44	-50
DIS	36.95	-36	-9	-16	39
JPM	40.21	-61	-92	51	2
MCD	76.98	-84	3	-50	35
HPQ	41.23	-90	-99	0	12
INTC	21.28	-93	-100	0	75
AA	13.96	-96	-96	34	8

Source: Erlanger Chart Room.

is underway. Interestingly, none of those uptrending issues are above 50 on the weekly ENS OB/OS, which suggests that no uptrending issue has yet to reach overbought on an intermediate (weekly) basis.

Earlier in this chapter, we showed how the weekly EROC can be used as a bias indicator for those who trade on daily price data. In Figure 3.51, this EROC trading process is displayed by sorting the weekly EROC column

FIGURE 3.51 Dow 30 Industrial Stocks—Tracking the EROC Trigger and Setup Signals


Symbol	Trade	EROC:D	EROC:W
VZ	34.63	Up	Up
CAT	93.12	Up	Up
CVX	88.01	Up	Up
MRK	36.66	Up	Up
PG	63.64	Up	Up
KFT	31.48	Up	Up
PFE	17.08	Up	Up
GE	17.49	Up	Up
UTX	78.95	Up	Up
AXP	46.12	Up	Up
MSFT	27.85	Up	Up
HD	34.79	Up	Up
T	29.13	Up	Up
JPM	40.21	Pullback	Up
XOM	71.85	Pullback	Up
KO	64.74	Pullback	Up
AA	13.96	Pullback	Up
INTC	21.28	Down	Up
BAC	12.29	Up	Rally
MMM	85.81	Up	Pullback
TRV	55.15	Up	Pullback
DD	49.24	Up	Pullback
JNJ	62.57	Rally	Pullback
IBM	144.72	Pullback	Pullback
DIS	36.95	Pullback	Pullback
MCD	76.98	Down	Pullback
WMT	54.23	Down	Pullback
CSCO	19.47	Rally	Down
BA	64.24	Down	Down
HPQ	41.23	Down	Down

Source: Erlanger Chart Room.

first to show bias, followed by the secondary sort of the daily EROC as the trigger. There are a host of buy triggers in Figure 3.51, with only two short-sell triggers (BA and HPQ). A buy trigger is initiated when the daily EROC rises above both the EROC zero level and its signal line (signified by “up”) while the weekly EROC is in the same condition. A sell short trigger is initiated when the daily EROC falls below both the EROC zero level and its signal line (signified by “down”) while the weekly EROC is in the same condition.

FIGURE 3.52 Dow 30 Industrial Stocks—Tracking a Combination of Erlanger Studies

Symbol	Trade	EROC:D	DMA Channel:D	ENS:D	EVS:D
KFT	31.48	Up	Above	93	14.60
VZ	34.63	Up	Above	91	37.46
MSFT	27.85	Up	Above	89	29.67
PG	63.64	Up	Above	86	17.59
HD	34.79	Up	Above	83	28.69
MRK	36.66	Up	Above	83	24.92
CAT	93.12	Up	Above	79	40.39
UTX	78.95	Up	Above	72	14.13
CVX	88.01	Up	Above	71	24.45
T	29.13	Up	Above	67	17.50
PFE	17.08	Up	Above	64	3.15
DD	49.24	Up	Above	56	20.00
BAC	12.29	Up	Above	22	9.89
AXP	46.12	Up	Above	21	27.82
GE	17.49	Up	Above	10	28.47
TRV	55.15	Up	Inside From Above	49	3.85
MMM	85.81	Up	Inside From Below	48	-2.42
JNJ	62.57	Rally	Inside From Above	63	-3.70
CSCO	19.47	Rally	Inside From Above	26	-16.30
KO	64.74	Pullback	Above	44	14.83
JPM	40.21	Pullback	Above	-61	13.76
IBM	144.72	Pullback	Inside From Above	43	3.40
XOM	71.85	Pullback	Inside From Above	7	17.42
DIS	36.95	Pullback	Below	-36	8.55
AA	13.96	Pullback	Below	-96	11.54
WMT	54.23	Down	Below	-25	1.44
BA	64.24	Down	Below	-35	-17.26
MCD	76.98	Down	Below	-84	-13.30
HPQ	41.23	Down	Below	-90	-14.64
INTC	21.28	Down	Below	-93	1.37

Source: Erlanger Chart Room.

In Figure 3.52, a combination of trigger factors is listed. The primary sort is the daily EROC column, with the secondary sort the daily DMA channel and the tertiary sort the daily ENS. Also included in this quote sheet is the Erlanger Volume Swing (EVS). By monitoring quote sheets such as the one in Figure 3.52, the trader can instantly determine which securities have triggered on all four indicators.

The use of quote sheets deployed to intelligently contain the various Erlanger Studies provides the medium for monitoring portfolios and makes effective use of the real-time changes in technical status, which is so important to bottom-line performance.

CHAPTER 4

Kase StatWare™ and Studies

Adding Precision to Trading and Investing

Cynthia A. Kase, CMT, MFTA
Kase and Company, Inc.

When I was studying to become an engineer in 1969, I often used the computer room, which contained the equivalent of large calculators hooked up to a Wang computer. We students thought these computers were light-years ahead of the slide rules that were used in class and to take exams. In 1974, when I was working as an engineer, the company distributed portable calculators and soon after that, I was impressed to see a colleague's "programmable" calculator, which could perform multiple-term calculations. It was innovations like this that led to the evolution in technical analysis from chart interpretation and a pattern-based focus to a more algorithmic approach, leading to Wells Wilder's 1978 *New Concepts in Technical Analysis*.

A decade later, live charting packages had made these algorithmic approaches, or technical indicators such as moving averages, Wilder's techniques such as DMI/ADX, and Appel's MACD, commonly available. At this point, the canon of technical indicators seemed to be completed. This was due to two factors: the first was that computer language architecture was primitive, so adding a new indicator at the time involved more or less tearing apart and

rebuilding the structure, and the second had to do with a “chicken and the egg” syndrome. Before computerization, indicators became popular through being published and traders plotted them by hand or on primitive spreadsheets. My experience was that live charting packages were able to program only popular indicators, and the only indicators that were candidates for popularity were those that had become available on charting packages.

As computing power and bandwidth made increasingly demanding calculations possible, the industry appeared to go down the road of handling more data in a clearer fashion by using more color and more intensive displays. The industry also became more sophisticated, with backtesting capabilities, portfolio management, screening functionality, and automated system development. What seemed to *not* improve was the calculation of indicators. There was a gap in providing traders with indicators based on rigorous mathematics and statistics and the coding of complex patterns previously identified only by eye, such as momentum divergence, or formerly calculated and drawn by hand, such as swings.

I transferred from engineering to trading in 1983 and became interested in technical analysis. I studied all the formulas behind the indicators so that I would understand how they worked. It became clear to me over time, especially after being exposed to options mathematics and statistics when I worked on a derivatives desk, that a traditional approach to trading could be improved by changing the very simple math in standard indicators. It was from that point on that the development of Kase StatWare, a set of proprietary trade entry, exit, and risk management studies, began. The indicators in Kase StatWare use multiple cycle lengths, multiple bar lengths, statistics and probability, complex pattern analysis, and similar approaches that make trading easier, more accurate, and simply better at identifying entries and exits, when to let profits run, and how to cut losses.

Kase indicators apply to many different trading styles or types. First, while composed of mathematically rigorous, semiautomated indicators, Kase uses a traditional approach to trading with technical indicators. This is as opposed to, for example, trading based on geometric patterns such as flags and pennants or on wave counts. What I would consider a traditional approach would be using trend identification indicators for entries (e.g., a moving average or DMI), employing momentum divergence or overbought/oversold signals on indicators (e.g., the relative strength index, or RSI), and depending on stochastic methods combined with trailing stops for exits.

Kase StatWare uses the familiar trade cycle of entering, placing stops, then exiting on either momentum or stop hits, but has replaced the outdated indicators. So Kase’s indicators and general approach to trading appeal to traders who have typically used this type of methodology.

Next, some traders want to use traditional indicators but have found them too difficult to interpret or too cumbersome to combine in an integrated systematic manner. Kase's semiautomation includes identifying buy and sell signals with "L" and "S" for long and short, and displaying the divergence lines on the screen for momentum indicators. Kase's simplified indicator displays eliminate much of the manual interpretation and simplify reading and trading with charts.

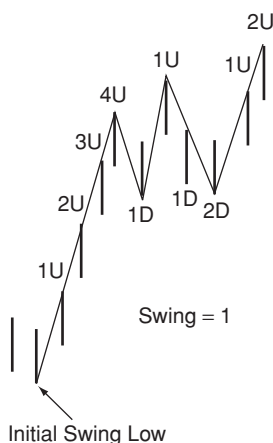
For engineers and for other traders who are intrigued by mathematics and who wish to be confident about how an indicator works and what its algorithms are doing, the appeal of Kase StatWare indicators is that they are based on statistical and financial engineering principles. For example, rather than basing momentum indicators on the rate of change between closes, or where the close might lie relative to a high–low range, as do RSI and stochastic methods, the "guts" of Kase's momentum indicators are based on the same probability mathematics as option theory.

Whenever I recall the old days, when I used traditional indicators to trade, I remember constantly tweaking my indicator parameters to better fit market conditions—for example, using a short periodicity, such as a length of nine, stochastic in sideways or oscillating markets, and longer periodicities in trending markets, like 21 or 34. At the same time I had to watch out for false signals. For instance, if the market had been quiet and trading in a shallow corrective pattern, and then experienced a volatile breakout, the stochastic could display a drastic excursion into overbought or oversold territory that was a result of a change in volatility and not a trend exhaustion. Kase's indicators are self-adjusting, optimizing each bar for volatility, cycle length, and in some cases, the variation of volatility, similar to options' gamma.

Introduction to KaseSwing

By Kase's definition, a *swing* is identical to what a scientist would call a *wave*, defined from peak to peak or valley to valley. Therefore, a wave would be characterized by the three points of valley-peak-valley or peak-valley-peak. In the markets the word *swing* is ordinarily used to differentiate scientific waves from Elliott waves. Here a swing is defined by three prices, x , y , and z , where x and z are swing lows, with y representing a swing high between x and z , or vice versa. This differs from Ralph Nelson Elliott's definition of *wave*, which is described as half and not full cycles or swings. Therefore the term *swing* is helpful in differentiating a full cycle from a half cycle, or Elliott wave.

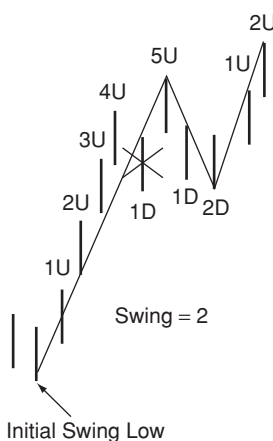
All that is required to identify swings is to choose the peaks and valley points, the swing highs and swing lows. At face value, this appears relatively

FIGURE 4.1 KaseSwing One

straightforward, and simply requires choosing the swing size or the number of bars up or down that are needed to define the swing.

With a swing setting of one, only one down bar or one up bar is required to draw a swing. With a swing setting of two, two up or down bars are required to draw a swing. The following figures show four up bars rising from a swing low, followed by one down bar, one more up bar, and so forth.

Figure 4.1, with a swing of one, counts the down bar (1D for one down) and then restarts the up count with the fifth up bar. Figure 4.2, with a swing

FIGURE 4.2 KaseSwing Two

of two, skips over the “1D” bar because the count of two was not achieved, continuing instead with “5U” for the fifth up bar.

Figure 4.3 shows how KaseSwing, with swing settings of 1, 2, and 3, may be plotted on the same chart. Such charts can easily highlight the significance of a given pullback. Here, the first pullback to 83.82 showed up only with a swing of 1, the second to 88.20 with a swing of up to 2, and the third was significant enough to show up with a swing of 3. This example of about six weeks' time on a daily chart generated three complete swings for swing = 1, two for swing = 2, and one for swing = 3, a relatively small number of swings given the trending nature of the price activity, yet it would have taken time not only to draw in the lines but also to determine and label the actual prices on the highs and lows.

Using Phi and Fibonacci Sequence (Fib) for Forecasting

Phi (ϕ) is a *transcendental* number, like pi or the natural log e. If the Universe is mathematics realized, then *phi* is one of the words that is uttered to bring it into existence. Phi is the only number that, when diminished by 1, becomes its own reciprocal; for example, $\phi - 1 = 1/\phi$.

Phi (ϕ , or 1.62) and phi prime (ϕ' , or -0.62) are the sole solutions to the equation $x^2 - x - 1 = 0$.

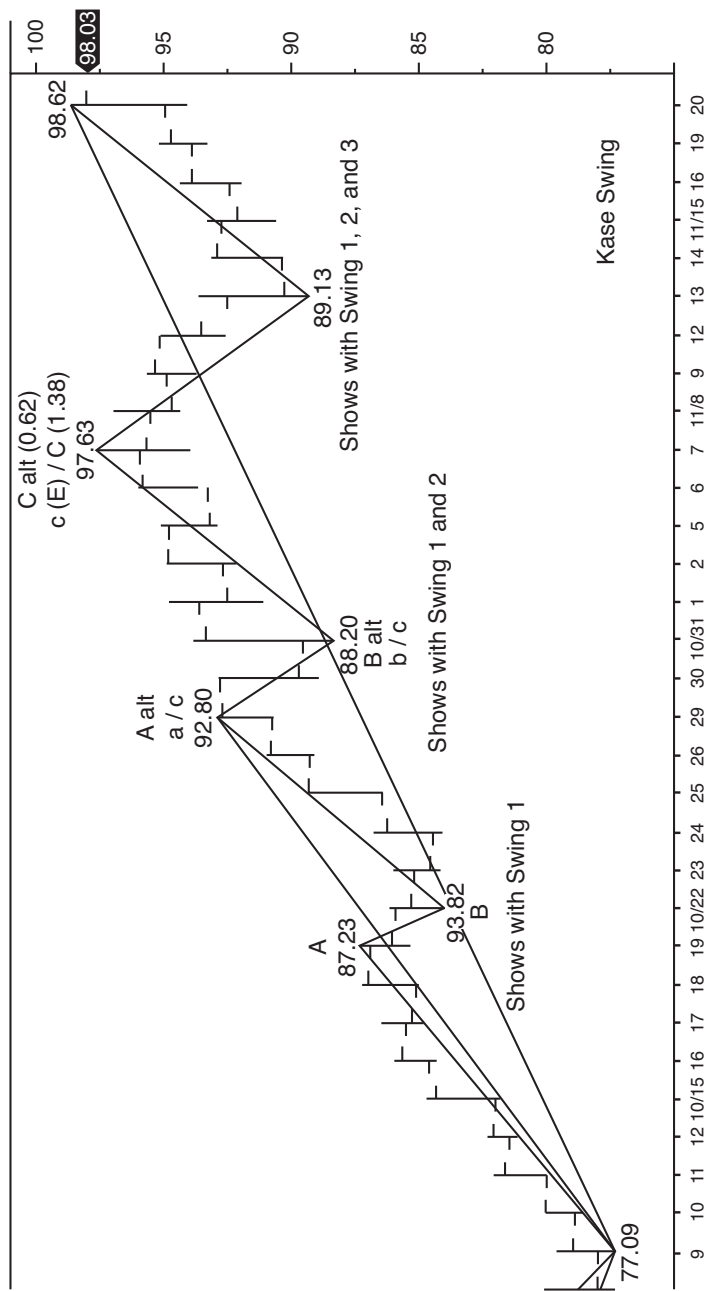
There are many books devoted to the subject of phi, which has many other interesting mathematical properties and is found in many proportions in nature, including human behavior relative to price information, that is, market data. Phi, the number x , and other numbers related to it, are used to project market prices.

One way that ϕ , and ϕ' can be found is by taking any two integers and adding them together, then adding the sum with the second number and so forth, as in $X_n = X_{n-1} + X_{n-2}$. In this way a number sequence is formed.

For example, the seed numbers could be 216 and 7. X is divided by X_{n-1} , such as $216/7$, and the resultant value converges to *phi*, or 1.618. Using 216 and 7, you will find that the 10th and 11th cells down the column are 4774 and 7729, with $7729/4774$, the 10th ratio, converging to 1.618. The inverse ratio is 0.618.

Many technicians refer to ϕ , ϕ' and other numbers relating to ϕ (such as 038, which is phi prime squared) as *Fibonacci extensions*, because they can be derived from the Fibonacci sequence. The Fibonacci sequence is one that can be derived the same way as the one described above, but the sequence begins with 0 and 1. So, $0 + 1 = 1$, $1 + 1 = 2$, $2 + 1 = 3$, and so forth, for integers of 1, 1, 2, 3, 5, 8, 13, and so forth.

(continued)

FIGURE 4.3 Crude Oil, CLF08 Daily, KaseSwing 1, 2, and 3 and Superficial Wave Count

If any two integers are used to seed a sequence, such as a and b , the sequence breaks down to $1\ a, 1\ b, 1\ a + 1\ b, a + 2\ b, 2\ a + 3\ b, 3\ a + 5\ b, 5\ a + 13\ b \dots 610\ a + 987\ b$, and so forth. So in the sequence used earlier, the actual values of a and b are irrelevant, and the formula reduces down to the Fibonacci sequence.

The ratios of 0.62, 1.0, 1.38, and 1.62 used in the examples all relate to phi (see Figures 4.3 and 4.4).

Using KaseSwing in Forecasting

Applications for KaseSwing that might be immediately obvious include using the swings for wave analysis and forecasting. For example, the KaseSwing with labeled points, $77.09 - 87.23 - 83.82$, projected to $\$97.83$ as the “1.38” extension, and the wave, $83.82 - 92.80$ (9.48 in length) are about equal to the wave $88.20 - 97.85$ (9.43). This is one reason why the chart might be labeled as an ABC where $A * 1.38 = C$ and $a/C = c/C$. This implies that the portion wave structure might be complete.

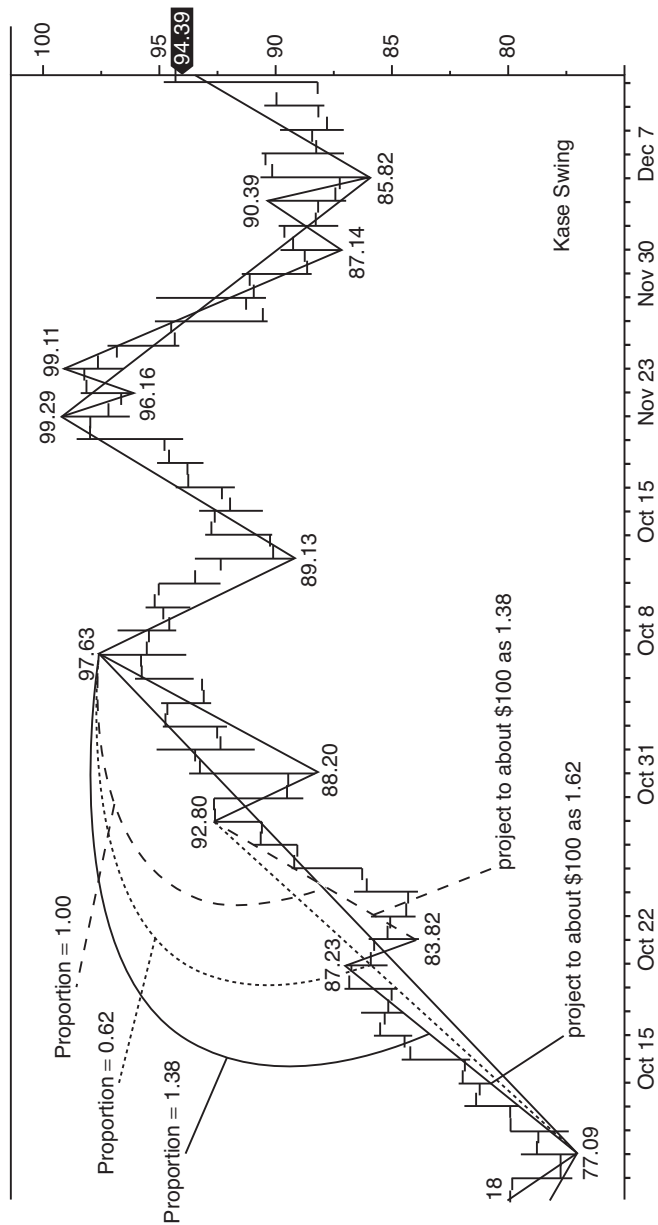
In addition to this superficial wave count, an alternative interpretation would have to be taken into consideration. During the move up, the corrective wave down to 88.20 is larger than the corrective wave to 83.82 . This means that the case can be made for it to be labeled B instead. Here the major swing is $77.09 - 92.80 - 88.20$. This wave projects to 97.90 as the “0.62” extension. These factors (the large correction and the fact that a key wave projection was met) along with the fact that the swing 3 held above $\$88.20$ supersede the first count.

In addition to helping analyze existing market activity, the labeled swings can facilitate estimating future prices. To continue the simplified example, the two swings noted above from 77.09 project to a price just above $\$100$, the first as the “1.62” extension, and the second as the “1.38.” So the next move up might be expected to test $\$100$, and if such a move up stalled short of that target, it might be considered a failure.

Prices actually reached $\$99.29$, failed at $\$99.11$ on a second attempt to move up, then dropped quickly by approximately $\$14$ to $\$85.82$. Therefore, when prices dropped below the $\$96.16$ swing low, a sell signal would have been generated.

This is the type of analysis done in actual forecasting. However, in that context, instead of identifying three or four swings, identifying 50 to 100 swings on many charts from monthly down to maybe 15-minute is common. KaseSwing helps to identify all the appropriate swings as well as the pricing points that define them.

FIGURE 4.4 Crude Oil, CLF08 Daily, KaseSwing with Fibonacci Price Projections



Even though defining swings might seem straightforward, it's clear that drawing in the swings and labeling all of them can be tedious. In addition, in real-life situations it's even more complex. In reality, special situations exist that relate to inside and outside bars and major new highs and lows that must be accounted for.

In the examples above, inside bars, that is, bars with a lower high and higher low than the previous bar, were treated as if they did not exist. For some applications it might be best to include them, such as when small looking at minor wave patterns, and when waiting for pullbacks so that second signals are allowable.

If so, there are eight combinations of conditions that have to be considered:

1. Inside Up Bar, After Swing High, Previous Bar Up
2. Inside Up Bar, After Swing High, Previous Bar Down
3. Inside Up Bar, After Swing Low, Previous Bar Up
4. Inside Up Bar, After Swing Low, Previous Bar Down
5. Inside Down Bar, After Swing High, Previous Bar Up
6. Inside Down Bar, After Swing High, Previous Bar Down
7. Inside Down Bar, After Swing Low, Previous Bar Up
8. Inside Down Bar, After Swing Low, Previous Bar Down

KaseSwing has a variable that allows the user to choose whether to consider inside bars, and if so, has rules coded to deal with all the cases mentioned. Figure 4.5 shows the same CLF08 chart as above with swing 1 with and without inside bars. In the first instance, the swing low of 83.82 is followed by an inside bar that closed down. Here the convention is to draw up to the high, then down to the low of the inside bar. To the right, the inside bar following the swing low of 93.88 has a close that is less than the open. If it were to be treated as a down bar, it would be ignored since it did not make a new low relative to the 93.88, so the convention is to treat it as a down bar and draw in the swings accordingly.

Figure 4.6 shows how extremes must be dealt with, assuming a swing size of 3. Following the swing low marked 3D there is a one bar upmove that makes a new high at 1U. Thus an "extreme" was reached at 1U, so that even though only a one-bar-up count was made, it is still drawn.

Using KaseSwing for Market Timing

Swings can also be used to enter and exit trades. In simple terms, if there are two swing lows where the second swing low is equal to or higher than the

FIGURE 4.5 Crude Oil, CLF08 Daily, KaseSwing 1 with and without Inside Bar Logic

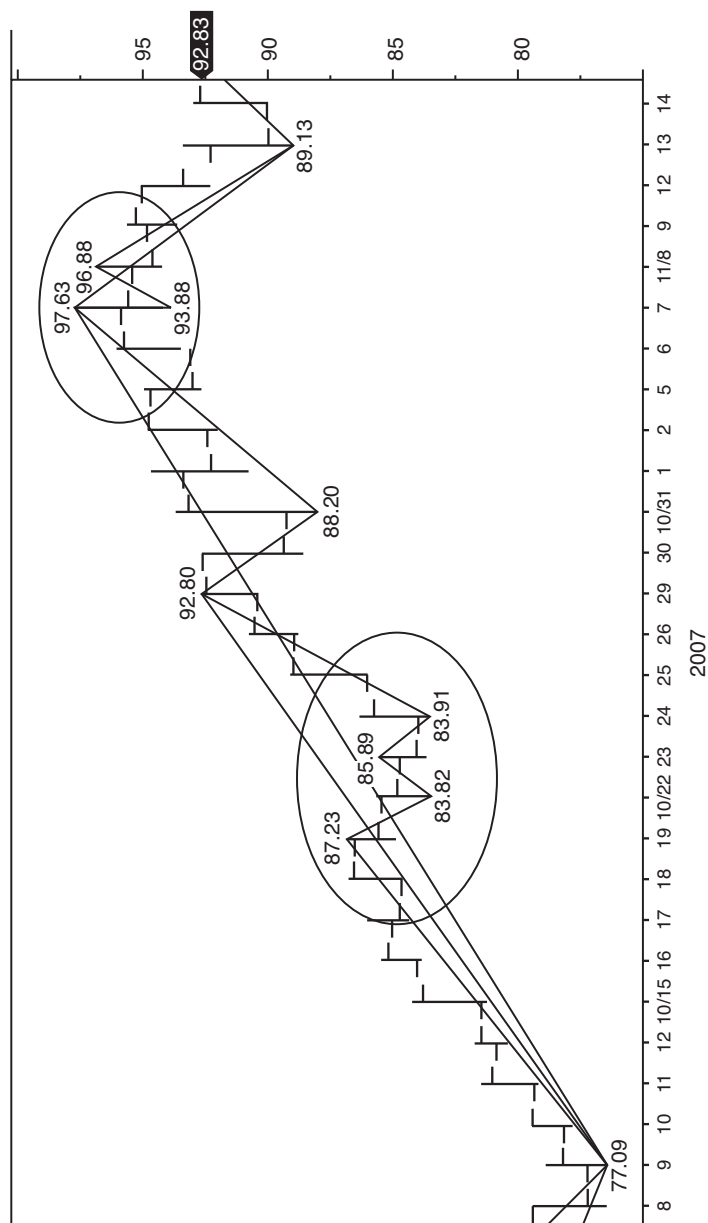
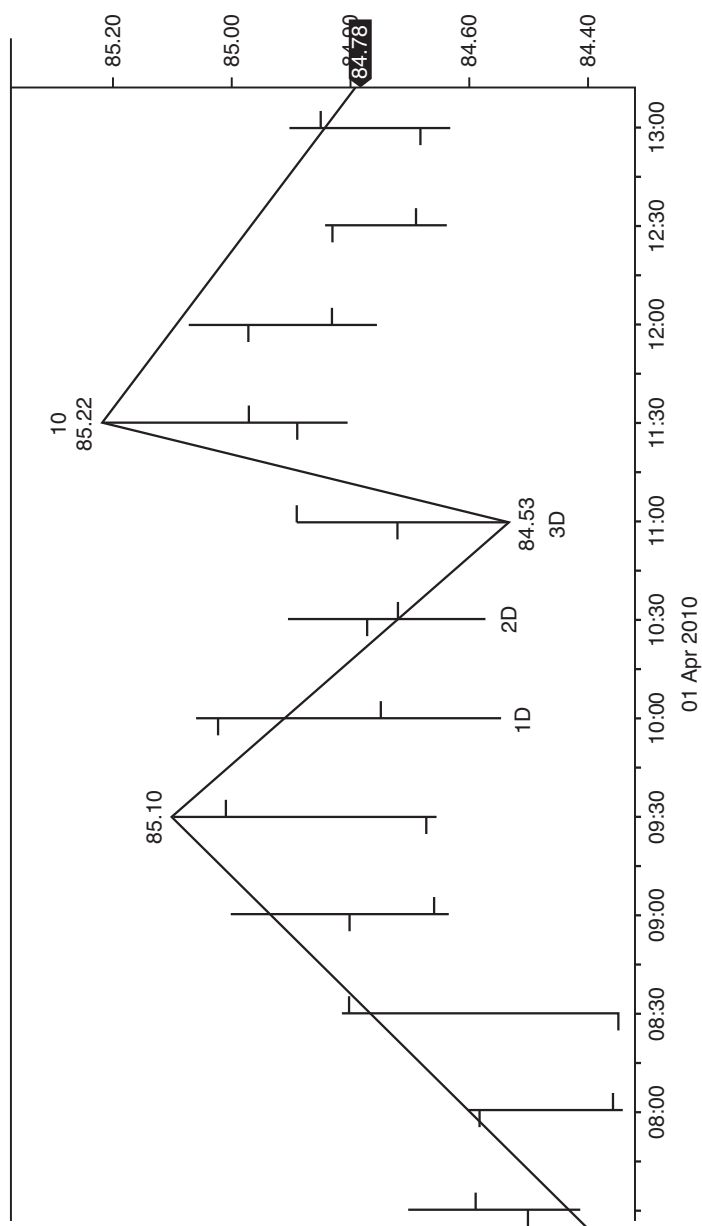


FIGURE 4.6 Crude Oil, CLK10 30-Min, KaseSwing 3 with “Extreme” Rule



first, then when prices exceed the middle swing high, a long trade may be taken, and vice versa. The swing low that preceded the buy can be used as a stop until a new higher swing low is made. If the swing low were broken, the trade would be exited.

Figure 4.7 shows CLK10 (May 2010 Crude Oil Contract) on a 30-minute chart. The second swing low, 83.14, is higher than the preceding one, 82.36, and the middle swing high between the two swing lows is 83.49. When the bar following 83.14 closed above 83.49, a long trade may have been taken per the up arrow (1), and a stop placed at 83.14. When the market hit 83.14, the trade would have been exited per the down arrow (2).

Following this a new, lower swing low was made at 83.12. So the move up from that lower swing low would then have been counted as a new, first swing. A second swing and outside bar formed up from 83.22 (arrow 3), so when there was a close over 83.40, a long trade may have been taken with a stop placed at 83.22. Once a new higher swing low of 83.30 was made, the stop would have been moved up to that level and then, following the 83.35, moved again, this time to 83.35. Finally, when the 83.35 swing low was broken, the trade would have been exited (arrow 4).

In the next example, shown on a daily cotton continuation chart, Figure 4.8, a swing low at 73.06 followed an earlier swing low at 67.37, so a long trade might have been taken on the bar following, which closed over the 74.16 midpoint as shown by the arrow. At that point the stop would have been placed at 73.06 and would remain there until the 78.47 swing low was made, at which point it would have been raised to that level. The stop would have remained at 78.47 until the 80.66 swing low was made, and then again raised, with the process repeated at 81.53.

So the stop that might have begun as approximately 1.5 cents magnitude grew to be more than a 6-cent stop. This is a shortcoming of using swings for exits: They are logical but not predictable. Swing lows and highs make logical exit points but they don't have predictable magnitudes, and may be either too close or too far away.

Given the variability of the swing stops, another stop method might be used to augment it. For instance, if the swing stop is very large, an estimated average of the last three or so swing stop magnitudes might be used as a proxy. This is shown in Figure 4.8, where the previous magnitudes, estimated from the swing high back to the prior swing low, for example, \$84.60 less \$78.47, is roughly \$6.00. The swings shown were very roughly \$6.00, \$3.00, and \$2.00. So, going forward, the stop might be set not to exceed about \$4.00. However, the need to adjust for large swings is one reason why the Kase DevStops, which are both logical and predictable, were developed.

FIGURE 4.7 Crude Oil, CLK10 30-Min, Using KaseSwing to Enter and Exit Trades

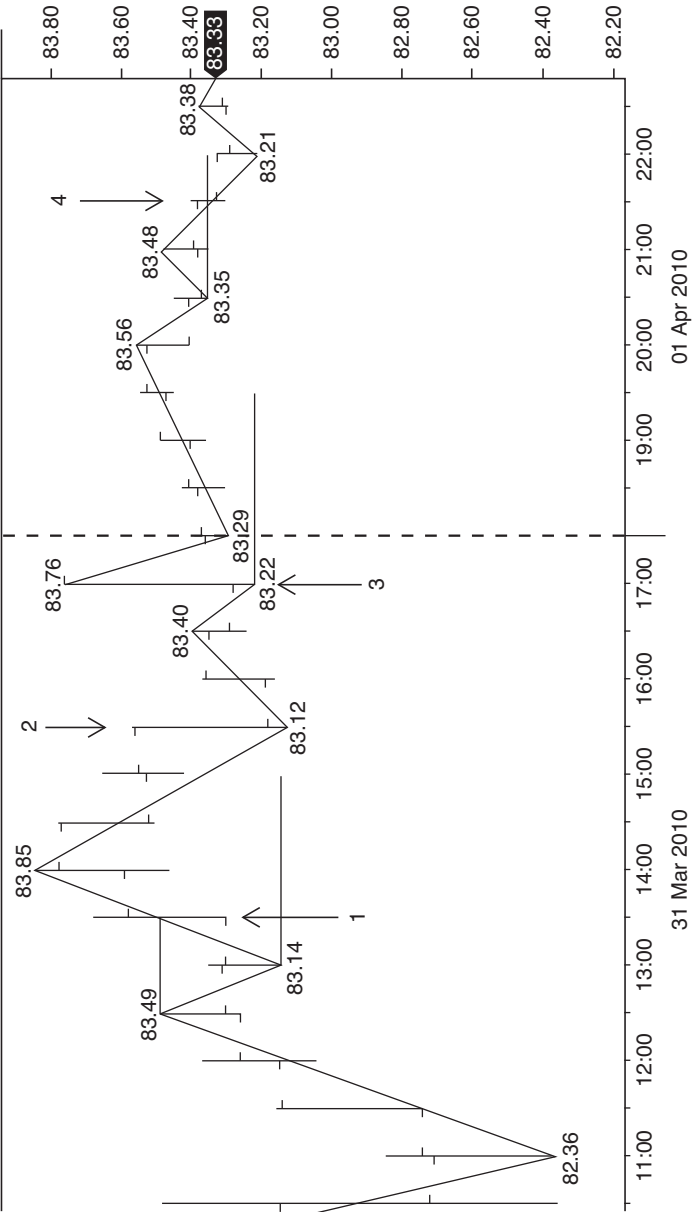
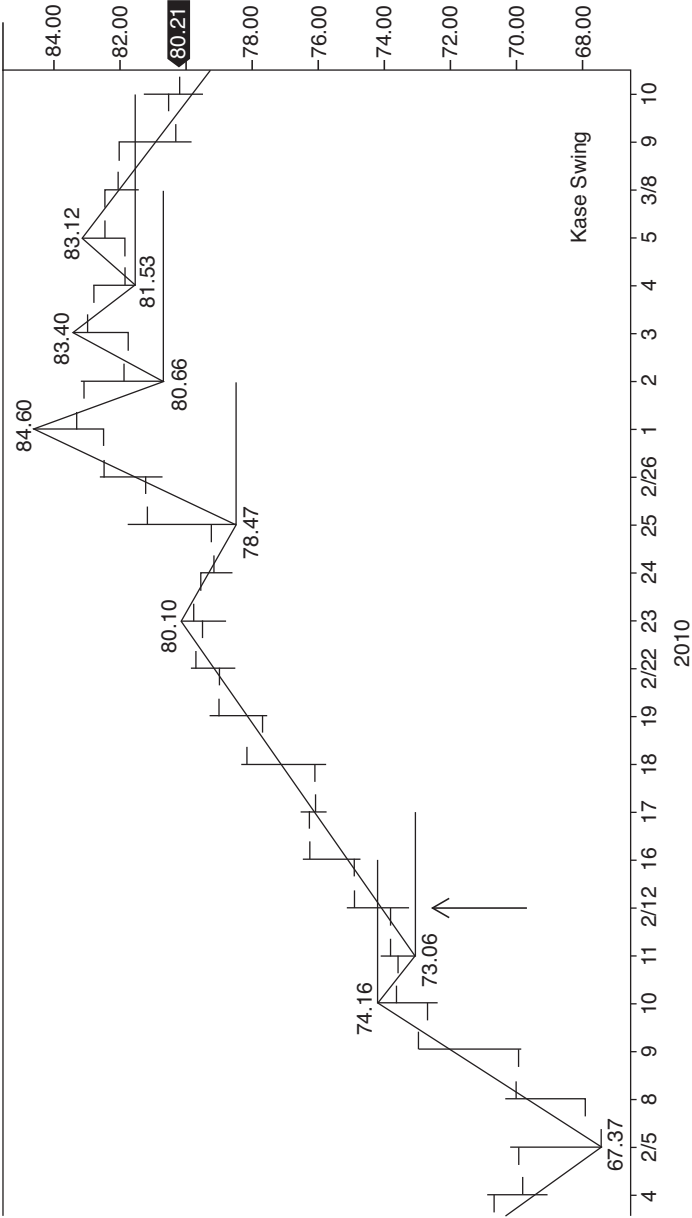


FIGURE 4.8 Cotton Daily Continuation, Using KaseSwing Entries with Swings as Stops



Kase DevStops

The Kase DevStops are based on volatility, using TrueRange as a proxy, and have a number of features not available with a swing system.

Trailing Stops

Figure 4.9 shows Kase DevStops based on the same data as in Figure 4.8, which uses swing stops. The first difference that can be seen is that the DevStop is a trailing stop. This means that with long trades, the stop trails below the market and follows the highest high that takes place during the trade. With short trades, the stop trails above the market and follows the lowest low.

Defaults Long or Short

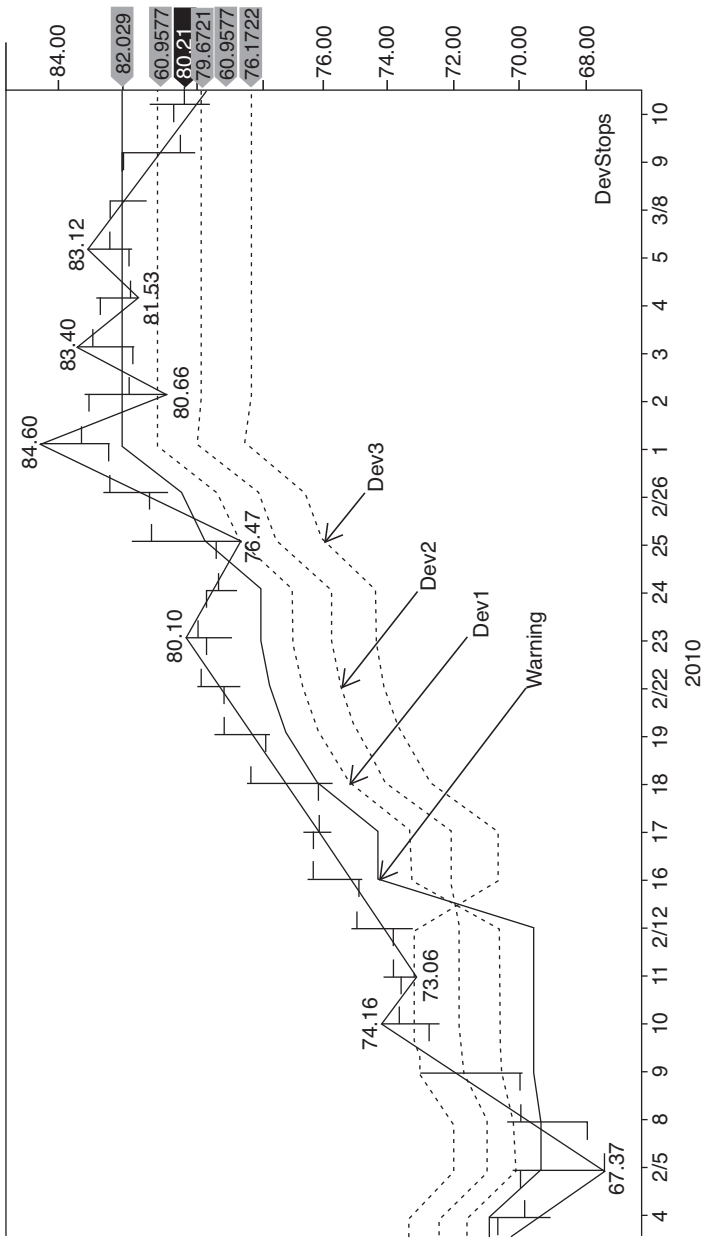
Next, Kase DevStops have front-end logic, using moving average crossovers to default the stops to consider the market status to be long or short automatically. When the fast moving average is greater than the slow moving average, the long stops (that trail below the market) are plotted, and vice versa. Thus the stops are able to trail below highs or above lows without input from the user. Inputs allow the user to override the default logic. Figure 4.9 shows the stops flipping from short to long following the \$73.06 swing low.

Considers Volatility

The major shortcoming of fixed-value trailing stops is in determining what value to use. Many new traders are advised to risk what they can afford. This is like a Gloucester fisherman standing on a bluff overlooking a raging wind-tossed ocean and shouting out to the six-foot swells, “Here I come, but my dinghy can only take 18-inch waves!” Like the ocean, the market doesn’t care what an individual user can afford. It is we who have to tailor our approach to the market; we cannot make demands of it.

The challenge is not only in determining a reversal value or stop amount, but also in that the level of a reversal that would constitute a reasonable stop in a quiet, low-priced market is different from one that would make sense in a volatile high-priced market. For example, at 40 percent volatility and with prices around \$20, prices change about 50 cents per day, while at 80 percent volatility and with prices around \$80, the change is about \$4.00 per day. So a fixed-value stop that is used under all conditions doesn’t work. A proxy for volatility is TrueRange, which is directly proportional to volatility. Even

FIGURE 4.9 Cotton Daily Continuation, DevStops



in the cotton example, the average TrueRange at the 73.91 swing high that took place just before the move up was 1.87, while at the trade's exit point following the 84.32 high, it was 2.61, an almost 40 percent increase.

TrueRange and TrueRange Double

1. TrueRange is very similar to the high–low range of a bar, except that it considers gaps.
2. $\text{TrueRange} = @\max (H, C[1]) - @\min (L, C[1])$; the range of a pair of bars is shown in the next entry.
3. $\text{TRD (TrueRangeDouble)} = @\max (H, H[1], C[2]) - @\min (L, L[1], C[2])$

Let's say the current bar's high and low are 80 and 79, the previous bar's high and low are 79.1 and 78, and the close of the bar before that is 78.2. The TRD is $80 - 78$, or 2. If the close of the third bar back had instead been 81, the TRD would have been $81 - 78$, or 3. If it had been 77, the TRD would have been $80 - 77$, or 3.

The average double-bar TrueRange is the TRD calculation averaged over n bars.

The average double-bar TrueRange is used as a warning line in the DevStops.

Considers Variability

While using a trailing stop based on multiples of ATR is a great improvement over a fixed value, nevertheless, even ATR-based stops have drawbacks. First, the multipliers are only reasonable guesses. Second, multipliers that would work under some market conditions might not work in others.

By way of example, let's consider the design of packaging for green beans. Let's say a grocer specifies that each bag must contain a certain number of green beans with an average length of 5 inches. One grower packages beans ranging from roughly 3 to 7 inches with an average length of 5 inches, the other from about 4.8 inches to 5.2 inches, averaging 5 inches. The first grower needs bags that are about 7 inches long while the second requires bags that are only a little under 5.25 inches long.

In the same way, under identical ATR conditions, the TrueRange from bar-to-bar can be quite regular or can vary considerably. Therefore, in a very

regular market, stops don't have to be as large to avoid being stopped out on noise, while in a very erratic market, even under the same ATR conditions, the stops may have to be much wider. The measure of the variation that captures values—such as the difference of two inches for the first green bean grower and only 0.20 inches for the second green bean grower—is *standard deviation*.

Understanding this, the DevStop has been designed to capture values to 1, 2, and 3 standard deviations over the mean TrueRange. This way, the amount of the stop would not only increase or decrease based on the average, but would also adjust based on the variability of the ranges involved. In actuality, a one-bar reversal would not usually be significant enough to exit a trade, so the Kase DevStops are based on double bars, or the TrueRange Double (TRD).

Considers Skew

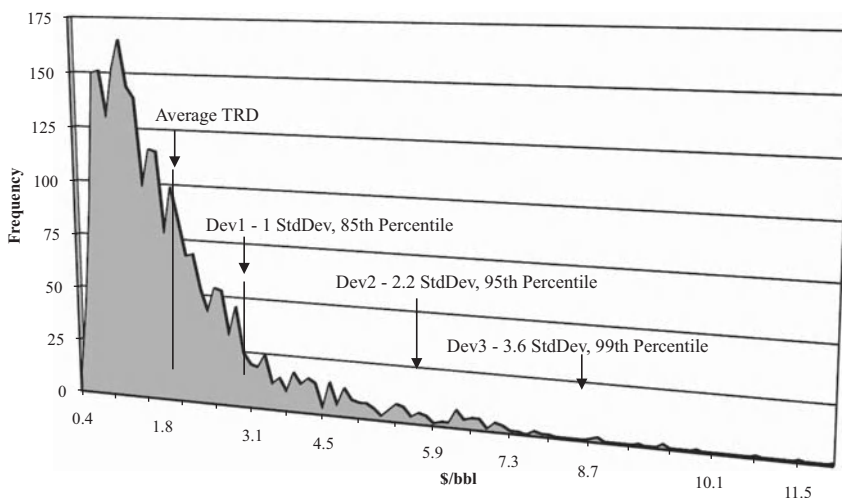
Only one more adjustment was necessary. Returning to the green bean example, it is not possible for green beans to exist that are zero or fewer inches long; however, even the grower whose largest beans were about 5.2 inches long would occasionally grow a freak 8-inch green bean. In other words, the skew of any normal green bean distribution would be to the right.

The same is true for markets. It's never possible for a bar to have a range of less than zero, so ranges are bounded by zero on the left or downside, but can spike to the upside. Thus the standard deviations used in the Kase DevStops have been adjusted to account for skew. There is little to no observable skew at one standard deviation. On average there is about 10 percent skew at two standard deviations, and 20 percent skew at three standard deviations. In conclusion, we use 1, 2.2, and 3.6 standard deviations over the average TRD for Kase DevStops Dev1, 2, and 3, respectively.

Figure 4.10 shows an example of the skew phenomenon common to all futures contracts—in this case, corn—on 10 years of daily TRD data. The chart shows that range, which is proportional to volatility, is skewed to the right. This means that the size of the bars above the mean is larger than would be predicted by a normal distribution, necessitating the correction for skew.

Both Logical and Predictable

Kase DevStops bring statistical discipline to exit and stop-loss methodologies. The amount of risk associated with Kase DevStops is calculable ahead of time, so that traders can match the volume and risk per unit to their risk appetites. In addition, because the stops are statistically based, the chance of being

FIGURE 4.10 Crude Oil Distribution of TRD: 10 Years of Daily Data to July 2010

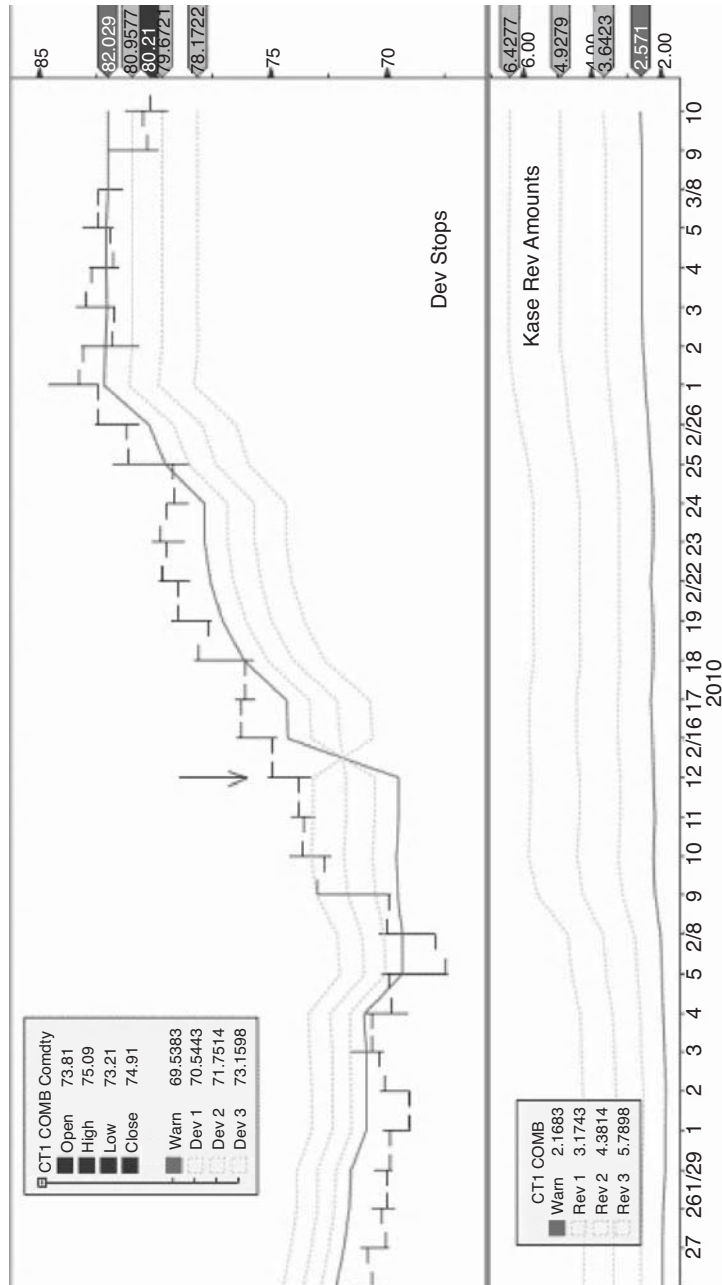
stopped out may be estimated ahead of time. Finally, Kase's research shows the likelihood of hitting subsequent stop levels once an initial stop is hit.

Amounts Calculable

Given the basis of Kase DevStops, they are logical, and because the stops are based on defined math and statistics, they are easily calculable; thus their amounts can be estimated in advance for risk assessment purposes. The risk amounts associated with each stop are available within StatWare as KaseRevAmounts, which is a plot of four lines, each representing the reversal value for a given stop.

Figure 4.11, using the same cotton chart shown earlier, illustrates that on the KaseSwing system exit day, Rev3, the approximate maximum amount that would normally have to be risked to let profits run was about 6 cents, or \$3,000 per contract. A user with a risk budget of \$300,000 per trade could buy 100 contracts. Conversely, if a user wanted to trade double the number of contracts, 200, a one quarter-day chart, or about 83 minutes, could be used. The reason is that risk is proportional to the square root of time. So increasing the volume by a factor of two means that the bar length must be reduced by one-quarter. At that point, the trader might set up a 75- or 80-minute bar chart and double-check the risk associated with that bar length.

FIGURE 4.11 Cotton Daily Continuation, Using KaseRevAmounts to Assess Risk



General Odds of Being Stopped Out

In addition to predictability in amount, there is a general predictability that relates to the percent chance of being stopped out on noise at any particular point. The reason for this is that there is a direct relationship between a point on a bell curve (number of standard deviations above or below the mean) and probability. Placing a stop at the warning line, the average TRD means that any two-bar reversal has a 50 percent probability of being stopped out on noise. One standard deviation equates to about a 15 percent chance, two standard deviations about a 2.5 percent chance, and so forth.

In an ideal world without skew, or in which all reversals were two-bar reversals, the probabilities would be exact. In the real world, though, not only are range distributions skewed, the degree of skew is not static. The skew itself forms a skewed distribution, and so forth, ad infinitum. Even so, the bell curve's probabilities, corrected for skew as described above, generate a sound mathematical basis for estimating the reasonableness of DevStop derivation and placements.

Follow-Through Odds of Being Stopped Out

In addition to statistical estimates of being stopped out on noise, Kase's empirical tests have determined the odds of a given stop being hit or closed beyond, based on an earlier stop being hit or closed beyond.

The studies were run on both daily and weekly data, and have been evaluated as a group on the most active futures on over 150,000 bars of data. Table 4.1 is a hit-hit table showing the odds of hitting a stop based on an earlier stop being hit.

The table shows that if the warning line is hit, then odds for Dev1 to be hit are about 80 percent. If Dev1 is hit, odds for Dev2 being hit are 80 percent, and so forth. If the warning line is hit, odds are about 45 percent

TABLE 4.1 DevStop Hit-Hit Table

Hit/Hit	Warn Hit	Dev1 Hit	Dev2 Hit
Warn Hit	X	X	X
Dev1 Hit	80%	X	X
Dev2 Hit	63%	80%	X
Dev3 Hit	45%	55%	70%

TABLE 4.2 Using Kase DevStops as a Forecasting Tool

CL Short	Warn	Dev1	Dev2	Dev3
Daily—M	—	78.4	79.6	81.0
Weekly—M	81.0	83.6	86.1	89.1

for a Dev3 hit. This sort of result can be looked at based on hit following hit, hit following close, close following close, and hit following close.

In addition, the results can be clarified further by looking at a higher time frame—for example, daily stops versus weekly stops—when moving averages are crossed in the same or opposite directions, and when there is a match between daily and weekly stops, such as Dev3 on the daily matching with Dev1 on the weekly stop. Used in this way, the DevStops becomes a forecasting tool.*

For example, if Dev3 daily is \$6.00 per mmBtu for May natural gas, and the warning line has just been hit, odds are around 45 percent that prices rise to \$6.00. If the weekly DevStops are in the same direction as the daily, and \$6.00 shows up as a DevStop on the weekly chart, then the odds increase. This sort of information can be especially helpful when trading an intraday chart, where moderately sized moves on the daily or weekly charts equate to large trades on an intraday level.

Table 4.2 shows how DevStops were actually used in one of Kase's weekly crude oil forecasts. In this example both the daily and weekly DevStops were in the same direction, which increased the odds of stops being hit. Crude oil was trading at \$77.83 and Dev1 on the daily chart had been hit. Dev3 on the daily chart and the warning line on the weekly chart were both \$81.0. Using the statistical probabilities derived for the historic studies, there was a 61 percent chance to hit \$81.0 and a 55 percent chance to close over \$81.0.

Studies also showed that there was an 80 percent chance to hit \$78.4 (daily Dev1) and a 70 percent chance for \$79.6 (daily Dev2). If \$81.0 was met, the statistical studies show that then the odds increase to hit the weekly stops. There would then be a 78 percent, 60 percent, and 12 percent chance of meeting \$83.6 (weekly Dev1), \$86.1 (weekly Dev2), and \$89.1 (weekly Dev3), respectively. So the stops used in this manner become a powerful

*Tables for hit-hit, hit-close, close-close, and close-hit, and tables that go into detail to describe situations in which the daily and weekly stops overlap, although too lengthy to print here, are available at KASE<GO> within Bloomberg Professional or at www.kaseco.com/DevStopTables/. The link to the tables is "Kase DevStop Tables" and the password is BOOK.

forecasting tool that can aid in showing the probabilities of meeting certain support or resistance levels in a forecast, and, as discussed further on, in shaping trading and exit strategies as well.

Allows for Scaling

The DevStop is displayed as four substops. The first is a “warning line” that is used, as the name implies, to warn the user that a turn might be taking place, and the other three stops represent the three different standard deviation settings described above. So the Kase DevStops consist of the warning line and Dev1, Dev2, and Dev3. Under most conditions, Dev3 is used as an emergency or passive stop that is always in place, just in case. Dev2 may be used in a similar fashion when the market is choppy or when outside events are causing price action to become erratic.

The probabilities can also be used for tailoring stops to risk appetite. For example, once the warning line is hit, odds are about 45 percent to hit Dev3. So, a user might decide to remove 45 percent of the trade. If Dev1 is hit, the odds increase to roughly 55 percent, so the user might at that point decide to remove an additional 20 percent.

In addition to the approaches described above, users might want to exit altogether at a closer stop, such as the warning line or Dev1, or accelerate stops, for example, using Dev1 as an emergency stop based on danger signs and exit signals.

Kase Momentum Divergence Algorithm

A major signal that is used for exits is “momentum divergence,” and along the same lines a key danger sign is a momentum divergence setup. Momentum divergence is defined as an equal or higher high in price accompanied by a lower or equal high in momentum, or an equal or lower low in price accompanied by an equal or higher low in momentum. The latter would strictly be called *convergence*, but the word *divergence* is generally used for both in technical analysis.

Typical traditional momentum indicators include simple oscillators (momentum), the relative strength index (RSI), the stochastic, and the moving average convergence/divergence (MACD) histogram. Usually the user identifies momentum divergence by drawing in lines connecting the price peaks and momentum peaks. The Kase Momentum Divergence Algorithm (KaseMDA) automatically identifies divergences and draws in proper divergence lines on both the price chart and momentum studies.

Momentum Study

Momentum, or simple oscillators, is derived by taking the difference of two moving averages. These can be simple moving averages, weighted moving averages, or even exponential moving averages. Momentum studies are usually displayed as histograms.

These studies are very easy to calculate. For instance, when using an oscillator based on a 10-period moving average and a 30-period moving average, the oscillator is the difference between the two moving averages. The formula for momentum is:

$$MA_{N1} - MA_{N2}$$

where $N2 > N1$.

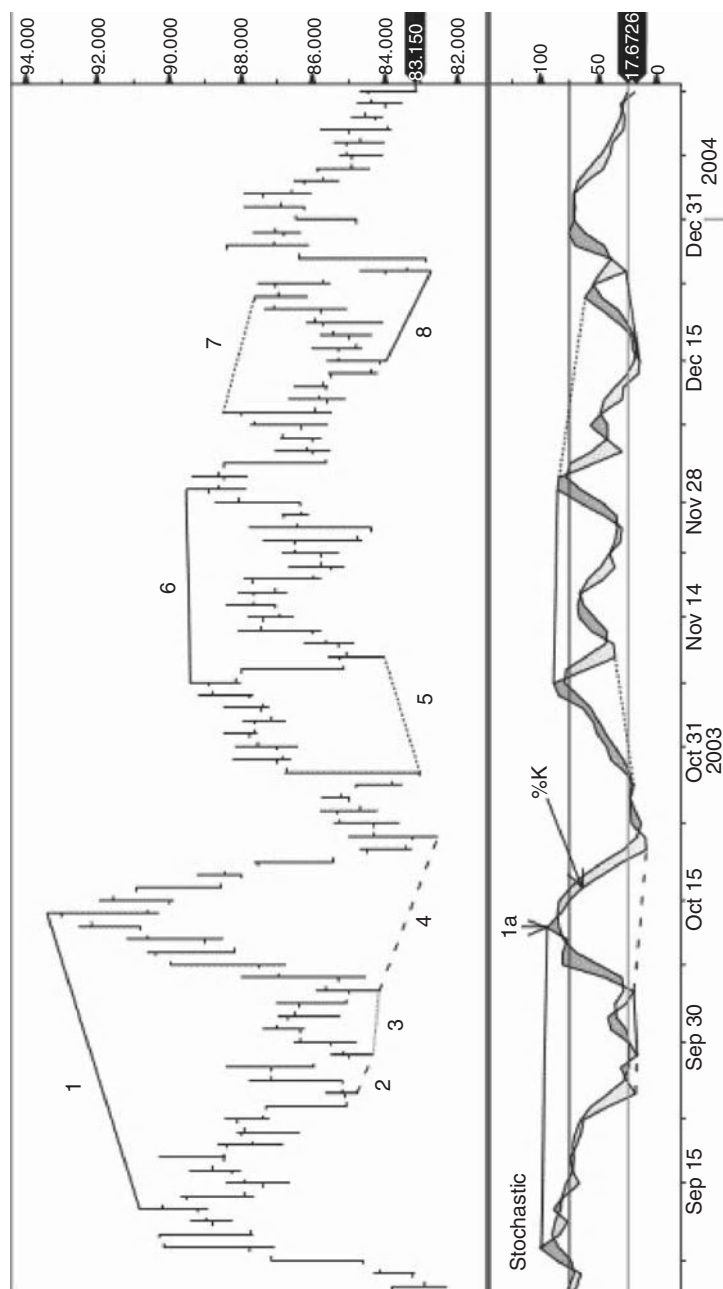
Correct and Incorrect Divergence Comparisons

A key provision in making momentum divergence comparisons is to compare highs in rising markets and lows in falling markets. Momentum divergence is read the same way on all the indicators as described above. Figure 4.12 shows correct versus incorrect momentum divergence comparisons. In this figure, a February 2004 pork belly chart with the slow stochastic is examined. The stochastic uses a line, shown in the figure in black, and called the %K, to identify divergence.

The following is a list of eight momentum comparisons that match the numbers in Figure 4.12. The solid black lines show confirmed divergences; the dashed lines show correct comparisons between price and momentum, but are nondivergent; and the dotted lines show incorrect comparisons between price and momentum.

1. This correct signal shows a higher high in price and a lower high in momentum.
2. Here, the two lows in price are properly compared with two lows in momentum, but because the second momentum low is lower than the first, there is no divergence.
3. This is a correct divergence in that a lower low in price is matched with a higher low in momentum.
4. As in 2, a correct comparison shows no divergence. Also a new high was made between the swing lows, causing a formation called bridging, which would also invalidate the divergence.

FIGURE 4.12 Pork Bellies, PBG04, with Momentum Comparisons



5. This signal is incorrect because the lows in price are rising, not falling.
6. This is a correct divergence in that a higher high (however slight) matches a lower high in momentum.
7. This incorrect signal compares falling highs.
8. The last comparison shown correctly identifies divergence with a lower low in price matched by a higher low in momentum.

Stochastic

The stochastic is a first derivative or velocity indicator. It is a measure of closing price relative to market range and displays as %K and %D lines, which are plotted on a scale of 0 to 100. Two horizontal lines are also usually plotted to represent the overbought and oversold levels, usually set at 80 and 20.

Commonly, there are two versions of the stochastic, a “fast” and “slow” stochastic. The fast stochastic uses the fast %K as defined below, with the fast %D usually a smoothed, three-period average of fast %K. The more widely used slow stochastic uses the fast %D as the slow %K, and a smoothed slow %K as the slow %D.

$$\text{Fast \%K} = 100 * (\text{close} - \text{lowestlow}_n) / (\text{close} - \text{lowestlow}_n)$$

$$\text{Fast \%D} = \text{Slow \%K} = \text{average}(\text{fast \%K}, 3)$$

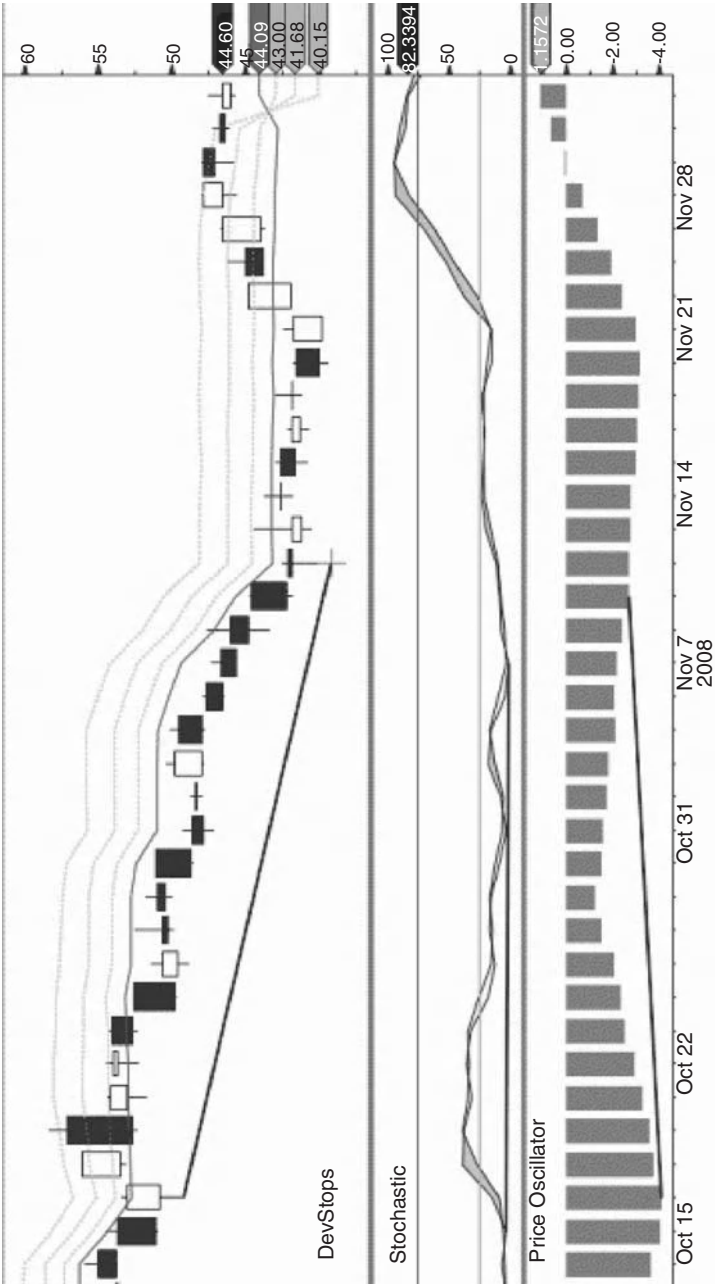
$$\text{Slow \%D} = \text{Average}(\text{fast \%D}, 3)$$

Note: n is equal to the number of bars over which the stochastic is calculated.

Swing Lows and Highs

Figure 4.13 shows the momentum study and slow stochastic on the same CT continuation daily chart during October and November 2008. On October 15, a slow stochastic low on the %K was made, followed by lows in both price and momentum the following day. On November 12, a lower low in price was made with higher lows for momentum on November 11 and the stochastic on November 7. Thus valid bullish divergences have taken place. In the example, the low bar has a plus sign on it, which, as part of the Kase StatWare Candlesticks studies, denotes a Harami star. This Harami star is also bullish and indicates a move up may take place. In this instance, given the two divergence setups and the candlestick pattern, the stop might be pulled into the warning line or a combination of the warning line and Dev1. Then the trade would have been exited on the confirming price bar on November 13.

FIGURE 4.13 Cotton Daily Continuation, Bullish Divergence on Stochastic and Momentum



As shown in Figure 4.13, for divergence to have occurred, a high or low must have been made, or, more precisely, a swing high or low. This means that to be identified as a low, the price bar on October 16 had to be preceded and followed by bars with higher lows. A common error is to assume that the status on November 12 at which point the price was lower than on October 16 was that of a completed bullish divergence. In fact the status would be considered one of a “setup,” generating a danger sign, but not an exit signal. Only on November 13, when a higher low was made, confirming the bar on November 12 as a low, would the divergence have been complete. KaseSwing is embedded into the KaseMDA to properly identify swing highs and lows, and does not have to be added by the user as it is automatically incorporated in the signals. Even so, as discussed earlier, it may be displayed as a separate study at the user’s discretion.

Date>	First Low	Second Low
Price	10/16	11/12
Stochastic	10/15	11/07
Momentum	10/16	11/11

Tolerance and Plateaus

In Figure 4.13, the stochastic confirmed three bars before the price confirmed, that is, the stochastic low took place three bars before the price low. So the bar tolerance for the match between the peak in price and in momentum must be addressed in identifying divergence as well in employing the KaseMDA.

This issue, relating to peaks in divergence identification, is shown by the arrow 1a, identified the correct divergence labeled 1 in Figure 4.12. Peaks in price and momentum don’t always match up exactly, so it is a good idea to allow the peaks to be off by a couple of bars. In “1,” a close look will reveal that the second peak on the momentum indicator came one bar before the peak on the price. The opposite phenomenon also sometimes takes place, with the peak on the momentum indicator coming one bar after the peak on price. If the price or momentum peak is only off by one bar, the divergence is valid. However, if a divergence is off by four or five bars, the divergence does not count.

Kase research shows that a tolerance of two or three is generally allowable. Less than two requires excessive precision, while a tolerance of more than four allows for too many inaccurate divergence signals.

In addition, as shown in Figure 4.13, lows or highs can form plateaus of multiple bars. Normally, if a chart is generating plateaus of more than three bars, then the bar length might be too low. In any case, KaseMDA properly counts tolerance bars and considers plateaus when defining swing highs and lows.

Null Divergence

Whenever a peak in momentum precedes a peak in price there is a risk that the divergence will be nullified before confirming. Looking again at arrow 1a on Figure 4.12, the peak on momentum came one bar early; thus while the price was in the process of forming its peak one bar later, the momentum indicator could have turned back up and risen above its previous high, which is marked by the horizontal dashed line. If that had happened, the divergence would have been invalid or “null.” The same principle is true in reverse, that is, in the case when the price peaks one bar early. As the momentum peak forms, it may be invalidated by the price falling below the second swing low.

Now let's look at Figure 4.14, which shows an example of null divergence. As noted by the first arrow 1, on July 1, the first valid momentum low peak was one bar after the price low peak and formed a valid price/momentum pair. On July 13, a valid price low took place, arrow 2, followed by a low in momentum the following day. There must always be a bar following a low or high to show that it was actually a peak (as opposed to a new low or high following the bar tentatively thought to be a peak). Thus, on July 15 as the momentum turned higher, which confirmed the low peak in momentum, prices make a new low (see arrow 3), invalidating the previous price low and nullifying a divergence, which would have been drawn to the July 13 price and July 14 momentum lows, as shown.

Other Fine Points for KaseMDA

Filtering the Momentum Peaks

Some momentum indicators can generate series of very small peaks that are only minutely different from the surrounding data. Therefore, traders may wish to filter out peaks that are very close to the zero line in the case of the MACD and KaseCD, and which appear to be very similar to the surrounding data on the KasePO. Based on some optimization testing, for purposes of this study a 1 percent filter for peaks was used on the MACD and a 2 percent filter on the KasePO and KaseCD. No filters were needed on the stochastic or RSI.

FIGURE 4.14 Natural Gas, NGQ04, Example of Null Divergence

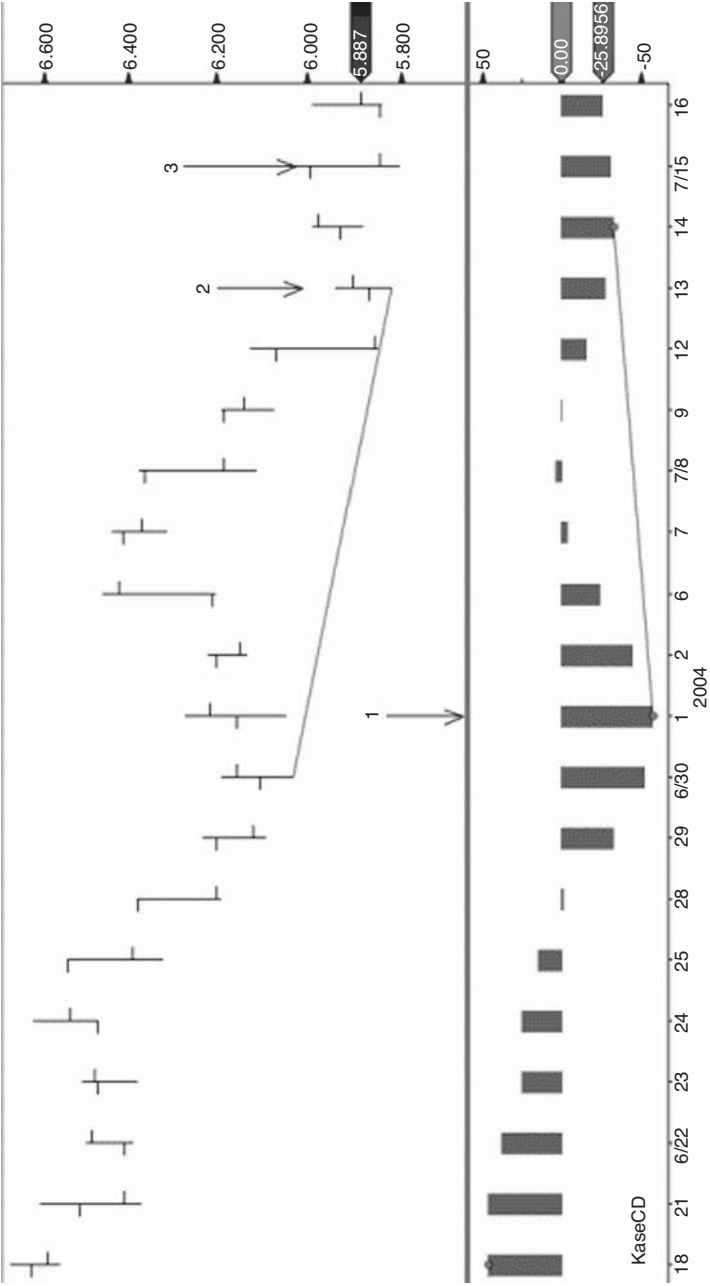


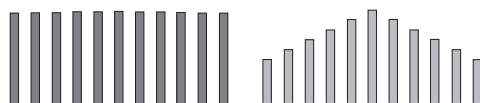
FIGURE 4.15 Low versus Normal Slope Histograms

Figure 4.15 shows a low slope peak on the left, with a rate of change of less than 0.5 percent per bar, versus a normal peak on the right, which has a slope of 6 percent per bar. The Kase momentum divergence method allows for a slope filter based on this logic.

Relative Strength Index (RSI)

The RSI is a momentum indicator that tracks the market momentum up versus market momentum down. Thus it measures rate of change between the two directions, and so is a first derivative or velocity indicator. The formula for the RSI follows.

$$\begin{aligned}\text{AvgDOWN} &= (\text{Close}[1] - \text{Close})/n \\ \text{AvgUP} &= (\text{Close} - \text{Close}[1])/n \\ \text{RS} &= \text{AvgUP}/\text{AvgDOWN} \\ \text{RSI} &= 100 - (100/1 + \text{RS})\end{aligned}$$

The RSI is usually plotted as a line, sometimes with its average, on a scale of 0 to 100, with overbought and oversold thresholds conventionally set at 70 for overbought and 30 for oversold.

Difference between Peaks

When programming divergence, the maximum allowable number of bars between peaks must be defined; otherwise, the program theoretically could look at an infinite number of bars between peaks. After testing numbers between 65 and 100, a range of 89 bars was chosen.

Using KaseMDA for Exits

Momentum divergence can be used, then, for exits. Indeed, using any combination of two traditional indicators, such as the MACD, stochastic, and RSI, in general, the DevStops' warming line will be hit about nine times out of 10.

Moving Average Convergence/Divergence Histogram (MACD)

The MACD is usually calculated by taking the difference between an exponential moving average oscillator, generally 12 as $N1$ and 26 as $N2$, and itself over 9 periods ($N3$), plotted as a histogram. The formula for the MACD follows.

$$\text{MACD oscillator} = \text{XMA}_{N1} - \text{XMA}_{N2}$$

$$\text{MACD histogram} = \text{MACD oscillator} - \text{XMA}(\text{MACD oscillator}, N3)$$

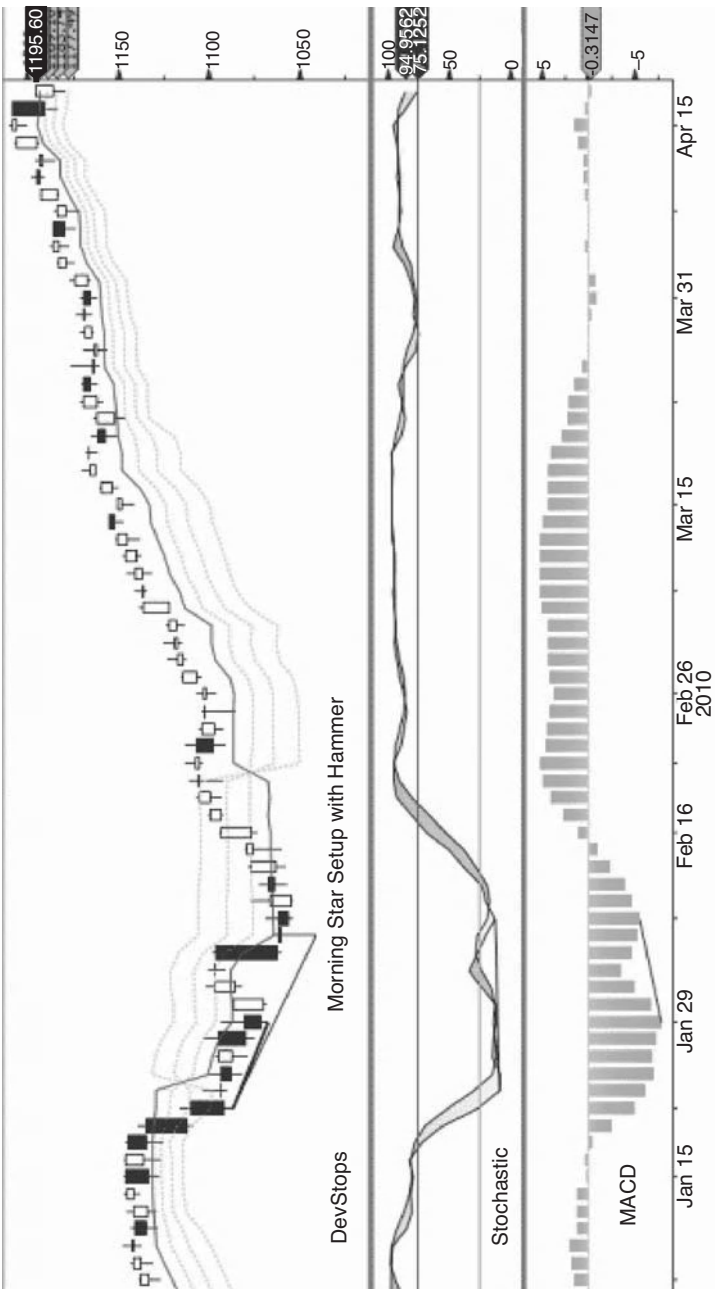
Figure 4.16 shows an S&P continuation chart with the stochastic and MACD with the Bloomberg defaults. A bullish stochastic divergence completed on February 2, two bars after the price low, at which time prices were just below Dev1. Because only the stochastic had generated a divergence signal at that time, stops might have been pulled into Dev2 or a combination of Dev 2 and Dev3. In either case, the stops would have held. On February 9, both the stochastic and the MACD divergences completed, two bars after the price low. Also the low bar was a bullish hammer pattern, and formed a setup for a morning star pattern. With a “double” divergence and a candlestick, 100 percent might be exited regardless of the stops hit.

Overbought/Oversold Signals on Traditional Indicators

It might be noted that overbought/oversold (OBOS) signals have not been used in the examples given so far in this chapter. The reason is that they can be unreliable in two ways. First, traditional indicators tend to remain OBOS for long periods of time during trending markets, and crosses in and out of the OBOS zones can often be caused by random oscillations. Looking to the right side of Figure 4.16, the stochastic was overbought from February 16 to April 17, so exiting longs or selling short into an overbought condition would not have worked out. Buying or selling when the %K crossed the %D and exited the OBOS zones would have led to either whipsaws or late exits. Using OBOS signals can be problematic for these reasons.

In addition, some indicators such as the MACD don't readily lend themselves to definitions of OBOS because they don't scale from zero to 100, and/or they don't automatically adjust for either cycle length or volatility. Therefore, there is no universal measure of OBOS. Also, many oscillators

FIGURE 4.16 S&P 500 Daily Continuation, Using KaseMDA for Exits



have more or less rounded tops and bottoms, which makes identifying peaks difficult, as discussed relative to Figure 4.15.

The difficulty in using OBOS signals with traditional indicators, even with about 90 percent follow-through to the DevStop warning line, is a major challenge in their use. This and related issues prompted Kase to develop much more accurate momentum indicators with clear OBOS signals and superior performance.

Kase PeakOscillator and KaseCD

The PeakOscillator and KaseCD are similar to traditional momentum studies but are derived from a mathematically sound, statistically based evaluation of trends. The PeakOscillator and the KaseCD automatically adapt to changes in dominant cycle length and volatility.

Proper Measure of Trendiness

When discussing the DevStops, the significance of the bell curve was discussed, where, for example, a two-standard-deviation move would mean that there was only about a 2.5 percent chance that it was random.

So when thinking about trend, similar logic can be used to see if a market is trending or not. The challenge is that a simple analysis of price relative to standard deviation of price, such as those captured by Bollinger Bands, does not provide this measurement. The proper measure of standard deviation of price that actually is relevant is related to volatility. For the Kase DevStops, a linear measure of volatility, TrueRange, was used. For the KPO and KCD, math from the actual Black formula is used, where volatility is the standard deviation of the logarithmic rate of change in price over a certain number of bars. The important phrase in the formula is *standard deviation*. The term for volatility or raw volatility could have just as easily been *market-standard deviation* or something along those lines. So volatility itself can be used as the underlying measure of a trend's statistical significance.

The measure of a trend's statistical significance is the Kase Serial Dependency Index, or KSDI. The market's trendiness up, the KSDIup, is its logarithmic rate of change from the low n days ago to the high this bar, divided by the volatility, which yields the number of standard deviations or ratio to volatility the market has moved up. The reverse measure is taken for the KSDI down, which looks at the logarithmic rate of change from the high n bars ago to the low this bar.

Adapted to Variable Cycle Lengths

The use of multiple cycle lengths in momentum indicators is not new. In the 1980s, Larry Williams introduced his Ultimate Oscillator, which uses three different cycle lengths rather than just one cycle length and is normalized for TrueRange. However, as computing power has improved, it's possible now to optimize cycle lengths over wide ranges rather than just using multiple static periods, to do so separately for upward versus downward moves, and to use Black's logarithmically based volatility rather than linear TrueRange.

During any given period, the duration of up or down moves in the market varies, and over the same date range, up move lengths can differ from down move lengths. Thus, fixed value indicators or even limited adaptive indicators that use the same length for up and down moves are inadequate, because cycle lengths vary and the appropriate cycle length for up versus down moves may be different.

Thus, KSDIup finds the significant cycle length for up moves and KSDI-down for down moves, each independently selecting the KSDI value based on the number of bars that returns the highest value for either direction.

The Studies

Once the most significant KSDIup and KSDI-down values have been calculated, the KPO and KCD may be calculated. For KPO and KCD, the KSDIup and KSDI-down take the place of the moving averages used in traditional oscillators and momentum indicators, and give a very precise measure of trend. The KPO is based on the difference between the two KSDIs. Like the MACD, a second derivative indicator, and an oscillator of an oscillator, the KCD is a second derivative indicator based on an oscillator of the KPO.

Why Use KasePO and KaseCD?

The PeakOscillator and KaseCD precisely identify turns and pinpoint over-sold signals. They also catch more and bigger turns when compared to traditional momentum indicators such as RSI, stochastic, and MACD.

More Precise Peaks

Because the KPO and KCD correct for both volatility and cycle length, or are "normalized," momentum peaks are, in a sense, forced to occupy discrete

points. Thus, rather than moving into a nebulous overbought or oversold condition, each indicator isolates exact histogram points where peaks might be taking place. In a sense, the math in the KPO and KCD can be thought of as forcing the histogram toward a peak, as illustrated in Figure 4.17.

In addition, because KPO and KCD are normalized, their values are significant regardless as to instrument, bar length, and other market conditions. Thus, defining OBOS can be done precisely for both the KPO and KCD.

How Peaks Are Displayed

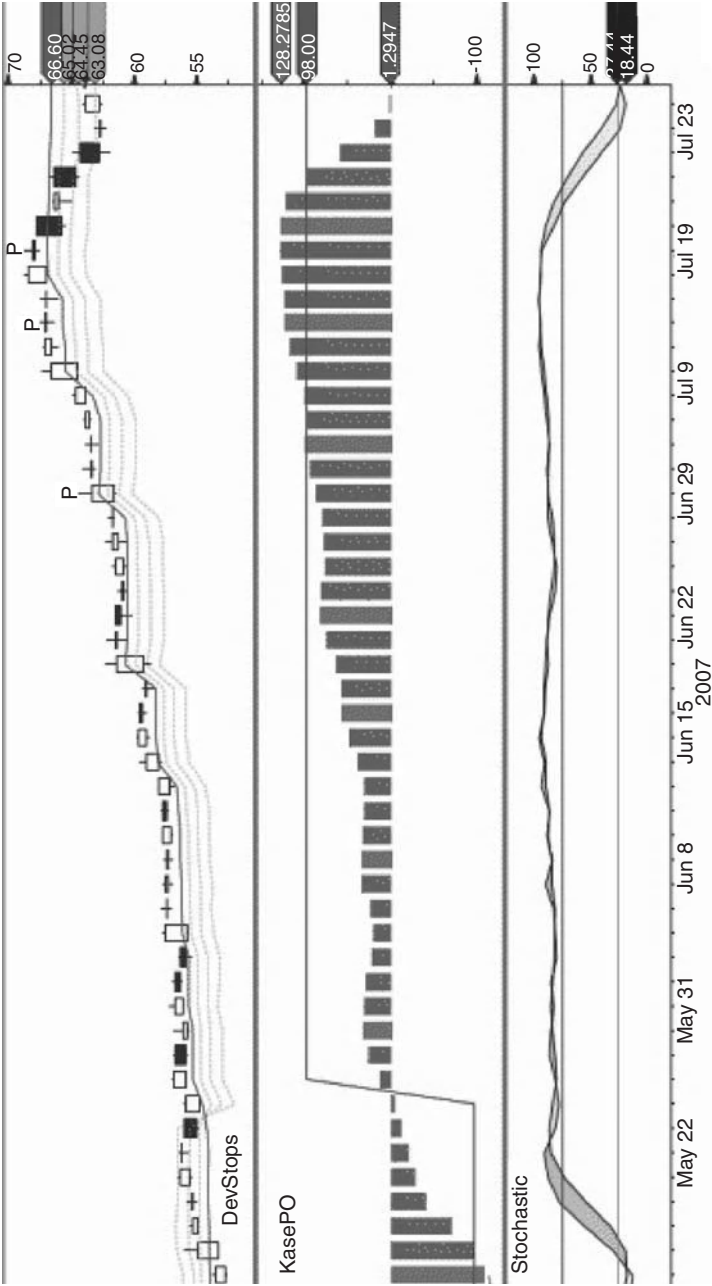
Momentum indicators provide measurements as to when an instrument is overbought or oversold. This is valuable information, but one of the pitfalls to using overbought and oversold conditions is that traditional momentum indicators fail to pinpoint turning points. They can also remain overbought or oversold for long periods of time. To address these issues, the KPO and KCD studies use techniques to match price peaks with momentum peaks to pinpoint overbought and oversold signals. These OBOS signals are called PeakOuts on the KPO and KCDpeaks on the KCD.

The KPO's PeakOut condition is defined by the lesser of a fixed value at 100 for overbought conditions and -100 for oversold conditions, or two standard deviations of the momentum value over a range of bars, and displayed as a solid line, called the PeakOut line, above or below the histogram's zero line. The fixed values of $+/- 100$ were derived from a study that examined 80 years of PeakOscillator values and represents the 90th percentile historically.

When the momentum histogram peaks above or below a PeakOut line, the KPO then attempts to match the histogram peak with a peak in price within a three-bar tolerance, similar to the matching explained relative to divergence. If the momentum and price peaks match within the tolerance, a PeakOut signal is triggered and labeled on the chart as a "P."

The KCD defines its overbought/oversold threshold using 1.75 standard deviations of its value over a range of bars. Rather than drawing a line on the oscillator to define the KCDpeak condition, the KCD histogram bars turn a different color (appearing as a shade of gray in the figures in this chapter) when they move above (for positive momentum) or below (for negative momentum) this threshold. Peaks in the KCD that meet the OBOS criteria are then matched against price peaks within a tolerance. If the KCD and price peaks match within the tolerance, a KCDpeak signal is triggered and labeled on the chart as a "K."

FIGURE 4.17 Cotton Daily Continuation, KasePO PeakOut Signals versus Stochastic OBOS



OBOS Signal Usable

Figure 4.17 shows a daily continuation cotton chart, where the stochastic began to rise in mid-May and did not fall out of overbought until mid-July, well after prices had turned down. Also, during this time at least four false divergences took place, as marked on the indicator itself.

The KPO did not rise into potential overbought territory until early July, and then generated three PeakOut signals as shown. Usually, in a trending market the first PeakOut is not significant, so stops might have been pulled into Dev1 until the price peak was exceeded. The second PeakOut took place on July 10, at which point the stops might have been pulled into the warning line, and in which case the stops held. The stochastic remained overbought and did not generate signals at this point.

Finally a third PeakOut took place on July 16 on a price peak that was part of a textbook Harami line and star. Here, the open of the Harami line, which was slightly above the warning line, might have been used as an accelerated exit. Thus, the exit might have taken place at 66.7 upon the following day's open. Once more, the Stochastic missed the signal, and did not exit the overbought zone until much later, when prices had already fallen to about 64.5.

Additional Reasons—Better Performance

Both the Kase indicators, the KPO and KCD, as well as traditional indicators, hit the warning line just under 90 percent of the time, but when looked at based on other dimensions, the KPO and KCD can be seen to be more effective than other indicators.

Rather than looking forward to see what happens after a signal is generated, stops can be evaluated to find out if there was a warning ahead of time, in the form of a momentum divergence signal or setup.

Although momentum indicators average over a 70 percent success rate in hitting Dev1 after a signal is generated, stops may often be hit without a prior signal. Sometimes a signal is generated before a turn, and sometimes not. When a momentum signal fails to take place before a turn, the market may turn and trades may be stopped out without warning. Also, when trades are missed, sometimes large turns are missed and at other times only small pullbacks are missed.

Kase indicators catch a large majority of turns while traditional indicators do not, and the turns that Kase misses tend to be small versus large turns for traditional.

Kase Catches the Larger Signals

When Kase indicators miss stops, they tend to miss the small turns, like the one on June 4 in Figure 4.17, and when the traditional indicators miss stops, they tend to miss the large turns, like the one on July 16.

Looking back at Figure 4.17, there was only one stop hit before the turn following the July 16 high. This was a warning line hit on June 4, which the stochastic caught but the KPO missed. This illustrates the point about the KPO and KCD versus the traditional indicators.

This points out another benefit of using KPO and KCD versus a combination of traditional indicators: the KPO and KCD, when they do miss turns, tend to miss smaller turns, while the traditional indicators miss larger turns.

Overall, Kase momentum indicators catch an average of 75 percent of the turns versus 48 percent for the traditional. This means that out of every 100 turns, Kase misses 25 and the traditional indicators miss more than double that, at 52.

However, for the larger turns, those that move sufficiently to hit Dev3, the values are 80 percent and 45; so of every 100 turns, Kase misses 9 larger turns and traditional indicators miss 20, or more than double that amount.

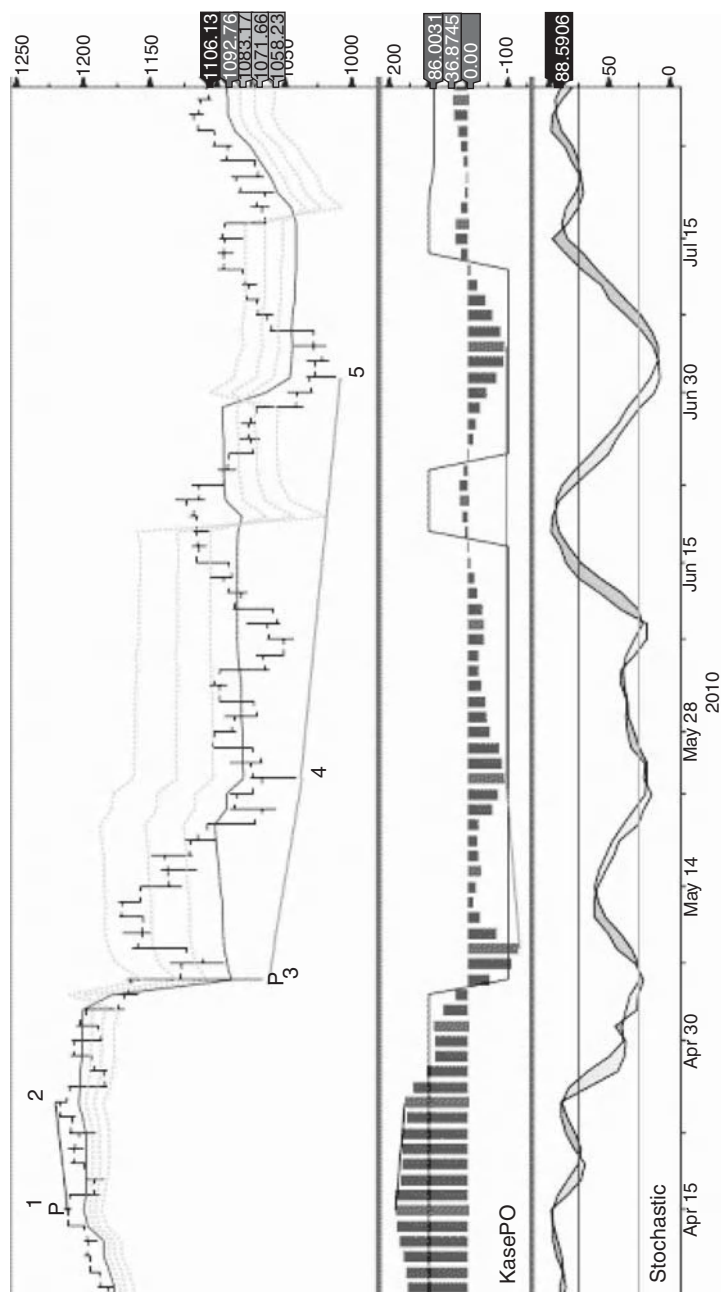
Kase Catches More Turns in General

To illustrate the point that Kase indicators catch more turns, let's look at Figure 4.18. This is a daily chart of the S&P 500 index with the slow stochastic and KasePO in the top and bottom subgraphs, respectively. Note the following points in the figure (labeled 1 through 5).

1. The first signal was a KPO PeakOut that warned the move up was possibly going to turn. Prices fell to hit Dev3 soon thereafter.
2. Both the KPO and stochastic showed a bearish divergence just before price fell well below Dev3 on May 6.
3. The PeakOut allowed traders to lock in most of the gain made when prices plummeted on May 6 and before the bounce back up hit Dev 2.
4. The bullish KPO divergence once again allowed traders to lock in some of their profits before the turn to hit Dev2 another time. The stochastic did not trigger this divergence.
5. The final signal on this chart was another bullish divergence that was caught by the KPO and missed by the stochastic. The run hit Dev3 and continued to move higher.

This comparison shows that in most cases, the KPO generated momentum divergence signals while the stochastic did not.

FIGURE 4.18 Daily S&P 500 Index, Stochastic versus KasePO



Predicting Turns

While Kase and traditional indicators hit the warning line with the same frequency after a signal takes place, the question must be asked in the opposite direction, as well. That is, how often are DevStops hit and how often do turns take place that are preceded by a signal? For example, if there are 100 turns and the stochastic has 10 divergence signals, 9 of which hit the warning line, that would mean that it has a 90 percent success rate in terms of follow-through after a signal, but predicts only 9 percent of the turns.

Studies show that two traditional indicators are effective in terms of catching turns: the RSI and stochastic. Even with this optimal combination, these indicators catch turns about 48 percent of the time, while the KPO and KCD catch about 75 percent. So, out of about 100 turns, Kase misses 25 and the RSI/stochastic combination misses over 50 percent, or more than twice the turns that Kase does.

Figure 4.19 illustrates how Kase indicators caught a turn while traditional indicators missed it. The chart shows a crude oil daily perpetual chart for the end of 2004 and beginning of 2005. Prices peaked at \$69.47 and a KCD divergence confirmed, with a PeakOut taking place at the price high and confirming the following day. These signals would have allowed profit-taking well before the market dropped significantly. Neither the RSI nor the stochastic were divergent, so with traditional indicators, the turn would have been missed altogether.

Figure 4.20 shows how the KPO caught a number of corrections as well as a major high and low for the July 2010 daily natural gas chart, and the RSI did not. Arrow 1 shows that the KPO was turning and its peak was coincident with the price peak. The RSI has three peaks over the same date range, so, while momentum was rising, it would have been a challenge to easily assign an RSI peak. If using the clearest peak, then the RSI divergence would have completed three days late, just below Dev3.

On December 3, another low was made that was followed by a run-up of almost \$1.20, or 25 percent. The turn was caught one day after the low by the KPO and was missed entirely by a nondivergent RSI (see arrow 2).

The next rally peaked at \$6.072 on December 29 and fell to \$4.035 on March 30. RSI did not diverge at the \$6.072 peak. KPO not only caught the more than \$2.00 decline, but was coincident with the peak (see arrow 3). At the trough, the KPO generated an oversold signal, a PeakOut, as shown by the “P” at the end of the chart, exactly coincident with the low.

The daily June 2010 soybean chart shown in Figure 4.21 compares the MACD with the KCD. Following a high on Jan 7 at the far left of the chart

FIGURE 4.19 Daily Crude Oil Continuation, Kase versus Traditional Indicators

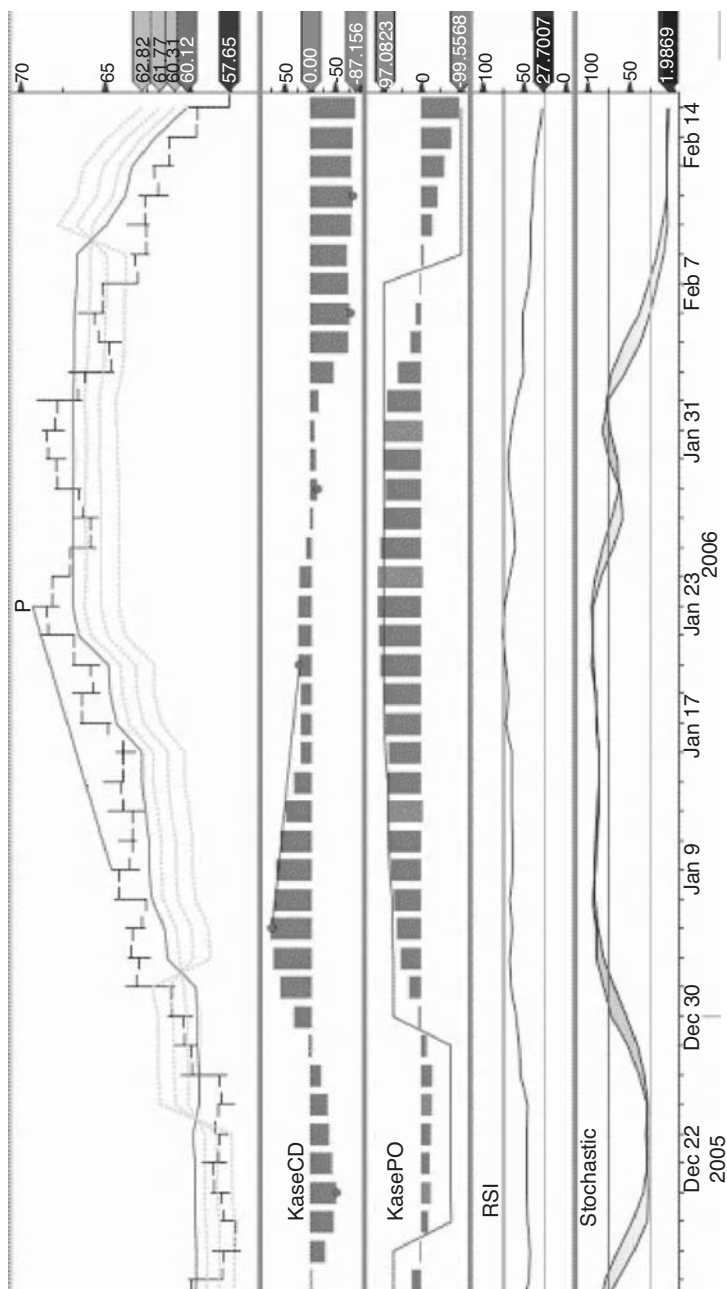


FIGURE 4.20 Natural Gas, NGN10 Daily, KasePO versus RSI, Natural Gas Daily, NGN10

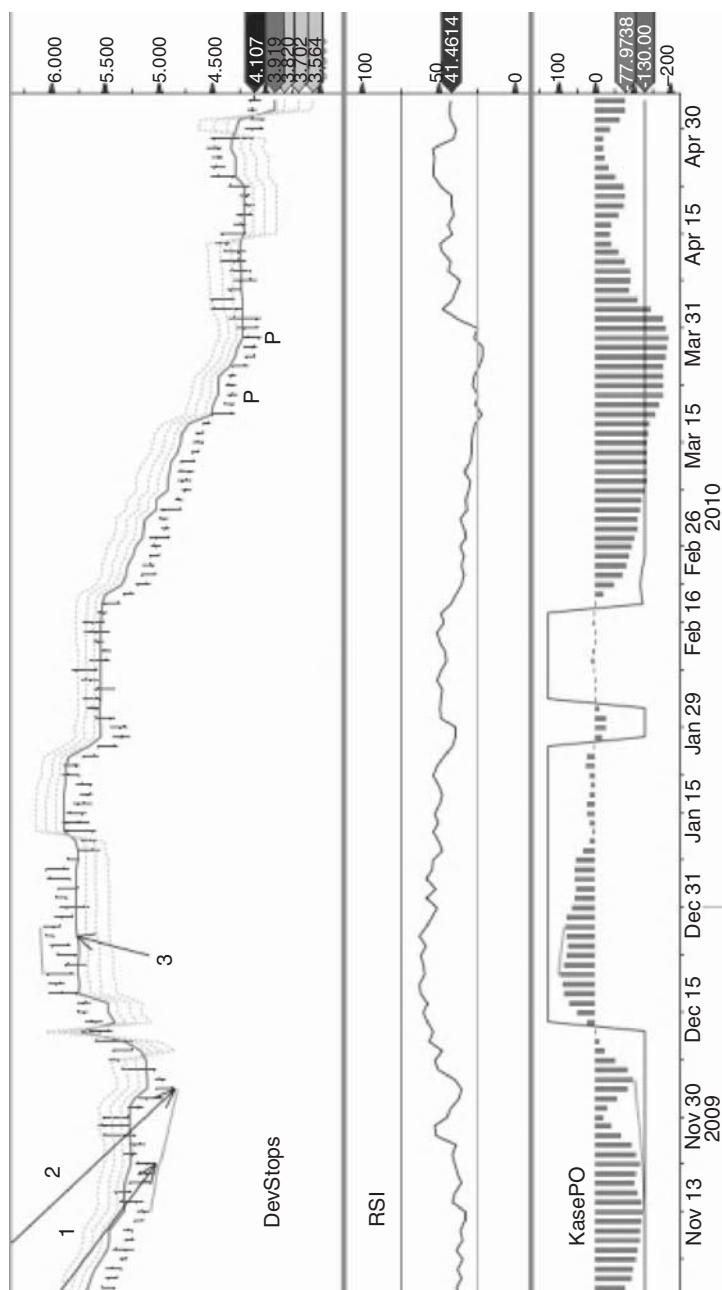
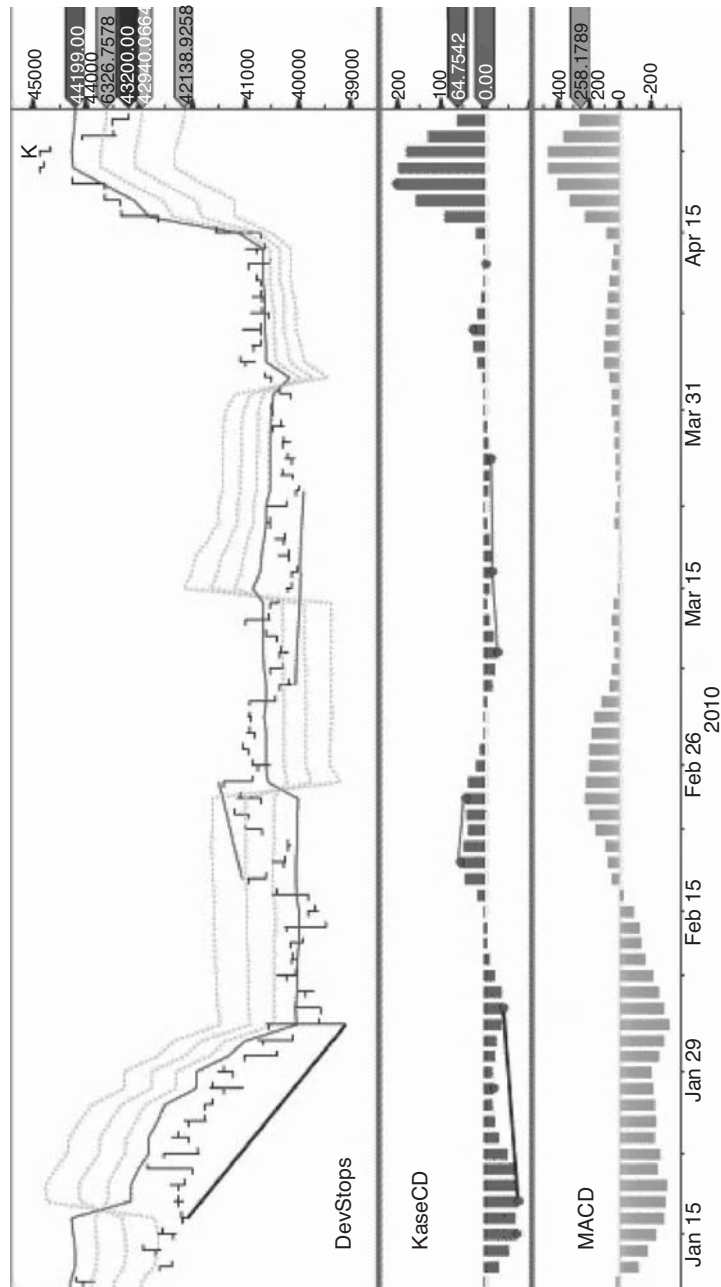


FIGURE 4.21 Soybeans, JSM10 Daily, KaseCD versus MACD



where both indicators were divergent, prices had fallen from 45250 to 40550 by February 3. The MACD made a lower low and was nondivergent, so MACD missed the turn. Prices rose until February 25, fell until March 24, then rose again to peak at 44890, close to the earlier high. In these cases, the MACD missed all the turns, as it was either a nondivergent peak, had only one amorphous peak, and/or only had values on the wrong side of the zero line. The KCD caught all the turns—the earlier three by standard momentum divergence signals and the fourth with an overbought KCD peak signal.

Kase Permission Stochastic and Screen

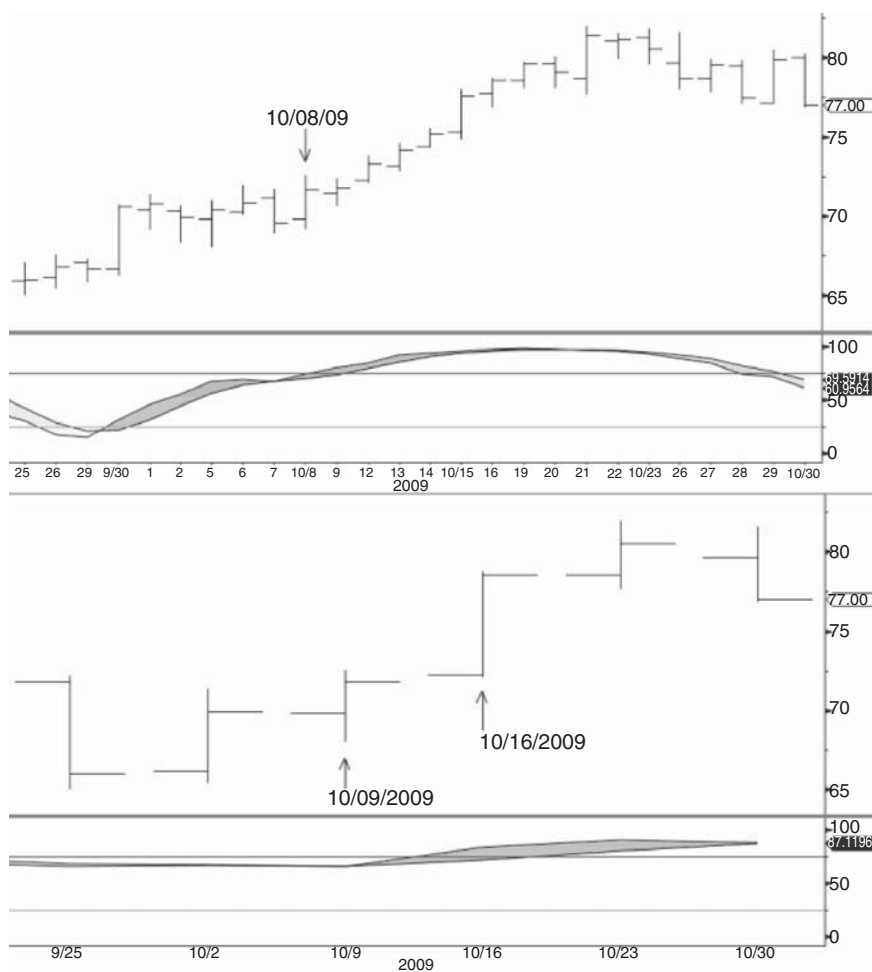
Trades taken in the direction of a major trend tend to be more successful than trades against the trend. This is because market moves are more or less structurally similar regardless of timeframe. If the trend is not confirmed on the longer bar length, then the move on the shorter bar length may be only noise or a minor fluctuation within the larger timeframe. Thus, it's good practice to screen trades with a longer bar length filter.

The challenge of using longer bar lengths to confirm signals is that of waiting for the longer timeframe to confirm: for example, waiting until the end of the week for a weekly to confirm a daily, or to the end of an hour for an hourly to confirm a 10-minute chart. Other complications are that most charting systems don't allow for setting up daily charts in other than multiples of five—that is, weekly—so screening a daily with a three-day is not possible. Also, sometimes it is not possible to chart two bar lengths such as a 55-tick and a 144-tick on the same chart.

As an example of having to wait for a longer timeframe to confirm, if Slow Stochastic crossovers were being used as entry signals on a daily chart, a weekly would be used for a filter. Thus a trader receiving a signal on a day other than Friday would have to wait one to five days for a confirming signal.

Figure 4.22 shows how a daily/weekly filtering technique would work. The charts shown are a crude oil daily continuation on the top, and a weekly continuation on the bottom. On Oct 8, 2009 the daily SlowK crossed above the SlowD. Let's assume that constituted a buy signal, pending "permission" or confirming filter on the weekly chart.

Looking at the weekly chart, by October 9, the weekly SlowK was still below the SlowD on the weekly chart. An entire additional week must pass until the trade is permissioned long by a crossover at the end of the following week, on October 16. So it took an additional six trading days for the entry signal received on October 8 to be confirmed on the weekly chart and even

FIGURE 4.22 Crude Oil Continuation, Filtering with Weekly Stochastic

though the trade was still profitable, an additional \$6.84 of profit was missed, based upon the close of Oct 8 versus the close of Oct 16. Note that calculations do not include transaction costs.

To address the shortcomings of using a fixed higher bar length filter, the Kase Permission Stochastic was developed. The idea behind the Kase Permission Stochastic was to build “synthetic bars” and create longer bar lengths from the bar length being traded.

The Permission Stochastic uses a multiple of lower bar lengths to create the synthetic longer bar lengths. For instance, in the example in which the trader wanted a weekly stochastic to filter a daily chart, five daily bars ending with the current day would be used to synthesize a weekly bar. In other words, the Kase Permission Stochastic viewed on Tuesday comprises data from the previous week's Wednesday, Thursday, and Friday, as well as the current week's Monday and Tuesday, using Wednesday's open, Tuesday's close, and the maximum high and minimum low of all five days.

The Slow Stochastic formula is then applied to the synthetic bars to create the Kase Permission Stochastic. On average, crossovers take place about two bars earlier when using the Kase Permission Stochastic; this allows for filters that are both efficient and conservative. It also allows for filters in multiples of other than five, such as a three- or eight-day filter.

Figure 4.23 shows the same data as in Figure 4.22; however, here Kase Permission Stochastic permissioned the long trade on October 12, four days earlier, which increased profit by \$5.26 relative to the filter in Figure 4.22.

Rather than having to plot and interpret the Permission Stochastic, Kase developed a Permission Screen that generates permission long and short signals based on the relationship between the %K and %D in normal as well as overbought/oversold conditions. The Kase Permission Screen is shown at the bottom of the chart with permission long in black and short in gray.

Entering Trades and the Kase Easy Entry System

The Kase Easy Entry System, or KEES, enters long trades when the market is rising and short trades when the market is falling. It is reactive and conservative on entries, as opposed to being anticipatory and trying to jump ahead of markets. To be more aggressive on entries, shorter timeframes should be used, and scale up to a longer-timeframe chart, as opposed to trying to jump ahead on the longer timeframe.

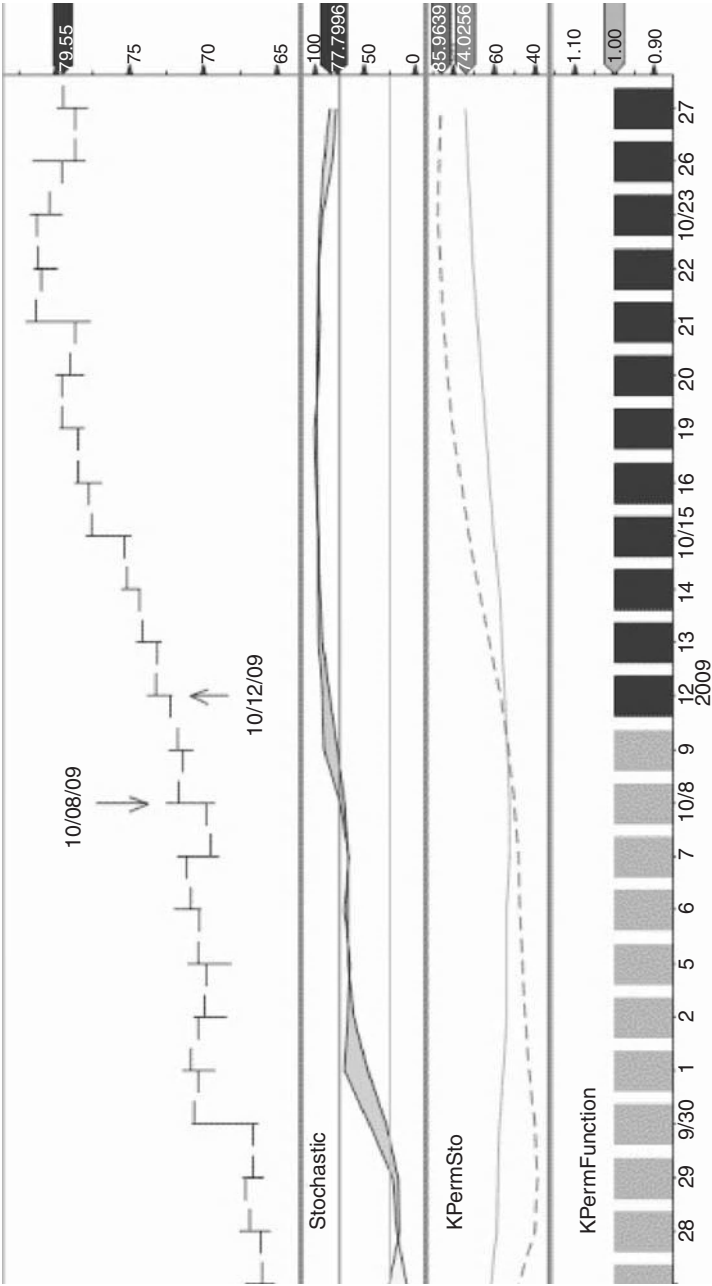
Kase's Three Basic Elements

The Kase approach uses three basic elements:

1. Multiple Basic Signals

The primary entry signals are based on three different momentum indicator crossovers. For this element of the system to be long, two of three momentum indicators have to be crossed to the upside, and vice versa.

FIGURE 4.23 Crude Oil Continuation, Kase Permission Stochastic and Screen



2. **Conservative Entries**

There are two basic indications that Kase uses to ensure that the momentum signals are validated: (1) higher timeframe filters, and (2) patterns.

- Signals may be validated using a higher timeframe or bar length (the Permission Screen), with the preferred higher timeframe three times the underlying—for example, a 45-minute filter with a 15-minute chart, or a 60-cent KaseBar with a 20-cent KaseBar.
- The other validation that can be substituted for a longer bar length filter is that of a pattern filter—for example, in the absence of a “permission” from the filter, for a long signal tone a valid pattern is two rising bars, the second of which must have an up close, and vice versa.

3. **Confirmed Entries**

A confirmed entry is one that follows an initial entry signal with a confirming signal after a pullback in price.

- A second or consecutive entry confirms a first signal. If a signal is false or would lead to a whipsaw, it often won't be confirmed. A second or consecutive buy is one that follows (or is coincident with, in the case of outside bars) a swing low that is equal to or higher than the swing low that is associated with an earlier buy signal, and vice versa.
- The other type of entry that can be used if a first signal only has been generated is to evaluate where the market is, based on DevStops, and to scale in per the related probabilities based on closes above or below certain stops. In this case, the hitting of the DevStops confirms the validity of the first signal.

Using Traditional Entries

Let's assume the following four rules are to be used with a standard traditional indicator system:

1. On the timeframe to be traded, two out of three momentum indicators must be crossed in the direction of the trade. For purposes of this example, the RSI with average, slow stochastic, and MACD are used.
2. A higher timeframe filter must offer permission in the same direction, and there must be at least one bar in the direction of the cross (down or up), with the most recent closing in that direction. In this example, a slow stochastic is used.
3. On the higher timeframe, if the filter grants the opposite permissioning status, there must be at least two bars in the direction of the crossover

(down or up), with the most recent bar closing in that direction. In this example, a slow stochastic is used.

4. Take only second and consecutive signals following a pullback.

First, a trading chart must be set up, in this example, CVX daily candlesticks in early 2010, with the stochastic, RSI with average, and MACD. The chart is plotted with candlesticks, which makes it easy to see if the market closed up or down on a given day. Even though it might be preferable to view the status of CVX on a three-day bar chart, this is not possible in most charting systems. Thus a weekly chart must be used. The second chart shows a weekly CVX with the slow stochastic. (See Figure 4.24.)

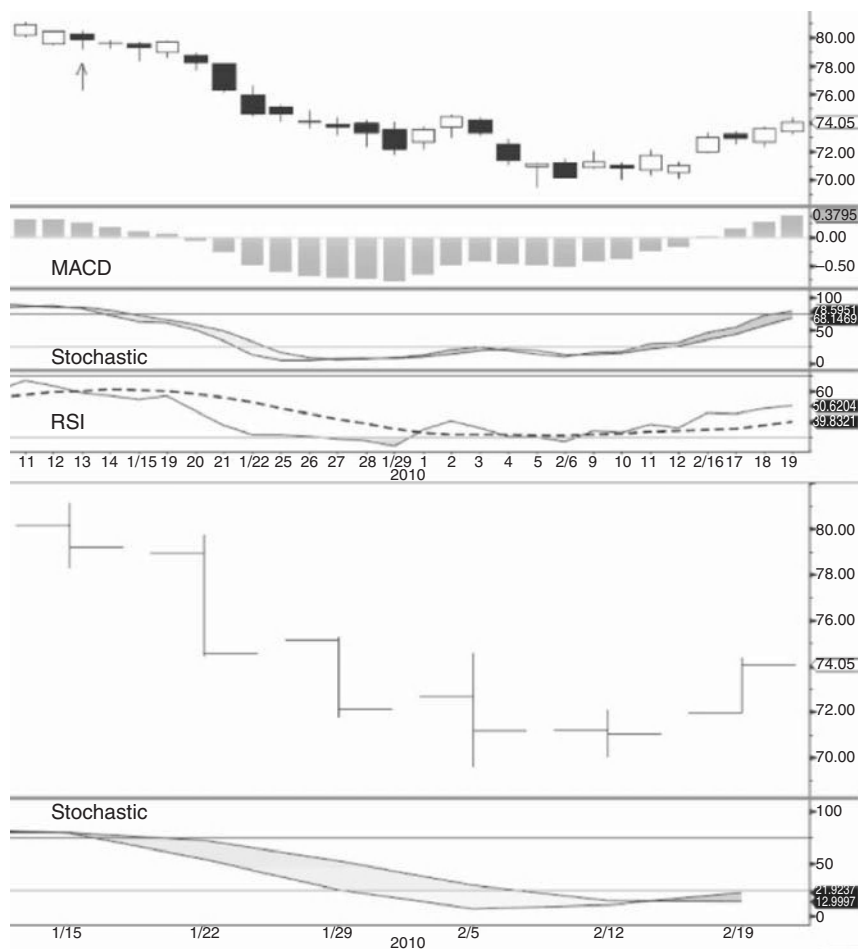
Multiple Basic Signals

Commencing with the swing high on January 11, a search for short signals following the high might begin, with a focus on whether at least two of three momentum indicators have crossed to the downside. The MACD is positive and has not crossed to the downside, but it's not clear just glancing at the chart when the RSI with average and the slow stochastic have crossed. Each indicator must be measured, with the finding that they crossed between January 12 and Jan 13, respectively. Having to check the status of three momentum indicators on an ongoing basis on one daily chart might not be overly time consuming, but doing so on many charts, or on intraday charts can become overly taxing.

Conservative Entries

After seeing that the momentum indicators have crossed by January 13, a weekly chart would have to be checked to ascertain the status of the filter. As of the previous Friday, the status of the weekly slow stochastic was long; that is, both the K and D lines were in the middle of the chart and the K was above the D. That isn't always the case, so in addition to having to switch back and forth between charts, using the cursor to evaluate the status of the stochastic is sometimes necessary. This may not be onerous when trading a daily/weekly combination; however, when trading shorter term, such as a 5- or 15-minute combination, it might become tedious, or even impossible to keep up.

Since the daily chart is in a "permission short" status and the weekly is not, the pattern of the bars must now be checked. The candlesticks indicate that January 13 was a day with a down close, but it's not clear from glancing at

FIGURE 4.24 CVX Daily with Stochastic Entry and Filtering System

the chart whether the high is lower than the previous high. At this point, both highs would have to be measured, finding that January 12's high was \$80.45 and January 13's \$80.41. A swing high formed on January 11, so January 13 was two bars after a swing high, a down bar, and a down closing bar, now qualifying as a first sell signal.

Confirmed Entries

After this, a pullback and then a second sell signal would need to be found in order to short the market. Therefore, after January 13, the next step is

to begin to look for the pullback. The chart shows that the following day, January 14, has a lower high and a down close, so if the bar had a lower low, the down swing would be drawn. If it had a higher low, then it would be an inside bar. At this point, it's too close to call by eye, so the bar's low would have to be measured. The finding is that the low is \$79.15, versus \$79.09 the previous day, so an inside bar was followed by another down day.

KaseSwing convention with this particular bar combination is to draw a swing line from the low of the bar before to the high of the inside bar and then down to the low of the following down bar. Thus a swing high was formed on January 14, after which a second signal would be sought, following the same process described above. Thus we follow the process of looking at the momentum indicators, the bar patterns up and down with up and down closes—the higher timeframe filter and so forth must be repeated in search of the second signal.

The chart shows that January 15 might qualify as a second sell signal, similar to the first. However, the status of the MACD is hard to determine visually, so the MACD's value on that day would have to be measured. It turns out that the MACD is -0.09 at that point. So, on January 15, a second sell signal would have been generated, allowing an entry.

To summarize, analyzing the market using a vigorous, conservative methodology takes a lot of work and is very time intensive—so much so that doing so across a range of instruments or when trading a short timeframe may not be practical. The KEES solves these problems.

About the Kase Easy Entry System

The Kase Easy Entry System (KEES) condenses all of the rules set forth in previous sections into simple S's for "short" and L's for "long." KEES uses rules similar to those described above, but with specialized indicators. For the RSI, Kase uses a proprietary "double Fibonacci" version. For the stochastic, Kase uses a proprietary stabilized version that has fewer whipsaw crossovers, the Kase Stabilized Stochastic. Instead of the MACD, Kase uses the KCD with settings designed to emulate the MACD more closely, but with the KCD advantages described earlier.

In addition, because the Kase Permission Stochastic is built using a synthetic bar in the background, it's possible to deviate from a setting of 5, such as would be necessary with a daily/weekly combination. Kase's research has indicated that using a setting of 3, that is, a bar length three times higher than that being traded, is optimal. In KEES, the optimal setting for filtering is used.

KEES generates signals using a combination of subsignals 1, 2, and either 3 or 4, and applying four rules, as described here.

1. Kase uses three momentum indicators, but substitutes specialized versions of the RSI, stochastic, and KCD for traditional indicators. For long signals, two of the three must be crossed to the upside and vice versa for short.
2. The bar upon which the signals takes place must be an up bar (a bar to which an up swing would draw), and must close up for longs and vice versa for shorts.
3. If the Kase Permission Screen is long, only one bar up from a low swing is required and vice versa for short.
4. If the Kase Permission Screen is short, multiple up bars are required, rising from the most recent major swing low before a signal can take place, and vice versa for short.

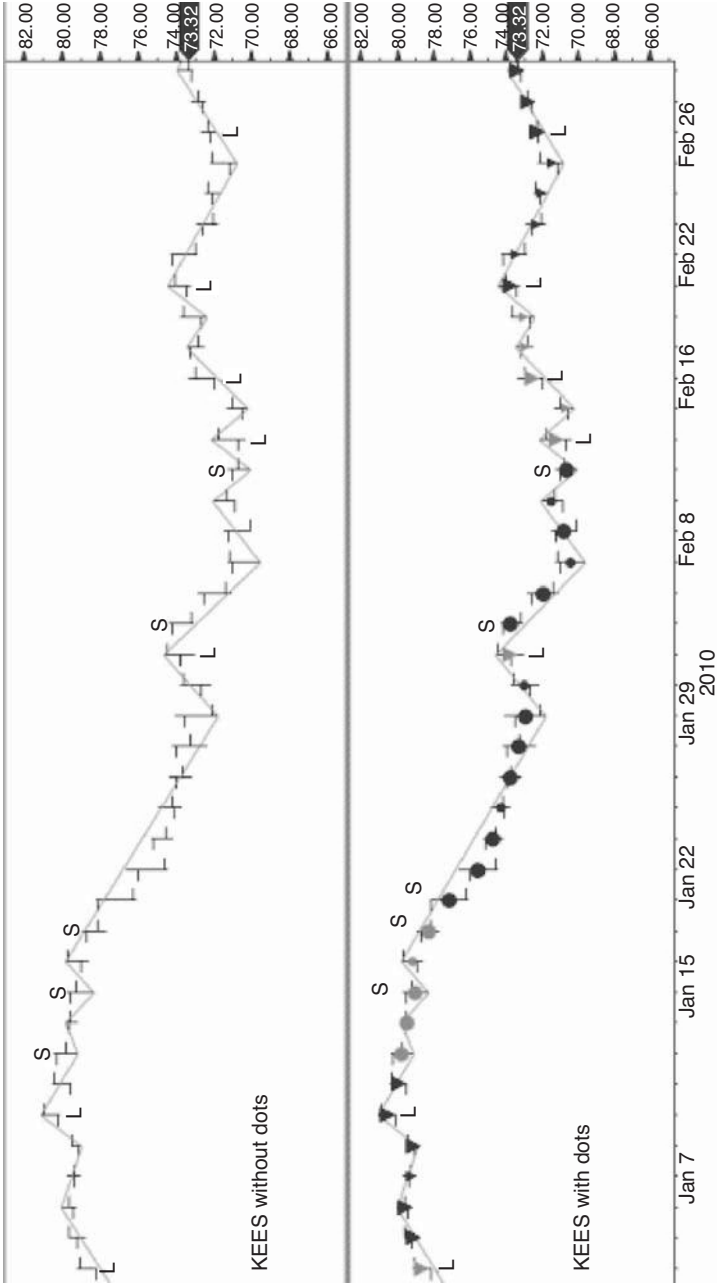
In actual charting environments, KEES is color-coded: the default colors for long signals are shades of blue, and for short signals are shades of red. In this book, because the figures are printed in grayscale, triangles are used for long signals and dots for short signals. Signals validated by the Permission Screen—that is, the 1, 2, and 3 combinations—are shown as the primary colors, blue and red dots. Signals validated by the upward or downward bar pattern—that is, 1, 2, and 4—are shown by the lighter shades of blue (cyan) and pink (magenta). So bars are marked with a red or magenta S or a blue or cyan L. In other instances, due to the use of grayscale figures, dark triangles and dots show the 1, 2, and 3 combinations, and gray triangles and dots show the 1, 2, and 4 combinations.

The top chart in Figure 4.25 shows the same date range as the CVX charts above, with KEES (plotted along with KaseSwing). This chart shows only the buy and sell signals with the color-coded system turned off.

It's clear by the S's (colored red, or gray in this figure) that a valid sell signal took place on January 13, followed by a pullback, with a second and sell signal on January 15. All this can be taken in at a glance and requires none of the time and effort of the manual system described earlier.

Some traders might like a bit more information about what is going on, though, and this is accomplished through a color-coding system on each bar, as noted above, using dots (blue, cyan, red, and pink) for bars that might qualify for long or short signals depending on their positions relative to swing highs and lows, and also depending on whether they close in the proper direction to qualify for a signal (rule 2 above), in which case a large dot is drawn, or not, in which case a small dot is drawn.

FIGURE 4.25 CVX Daily Using KEES and KaseSwing for Entry Signals



Here the status of each bar relative to three momentum indicators—the Kase Permission Screen, whether a bar is an up or down bar, and its closing direction—can be seen at a glance.

Now looking at the lower chart, it can be seen that the swing high bar and the bar following were both bars where the daily momentum indicators were long, the filter was long, and the bars closed up—all based on the black triangle. The following bars with the gray dots are all bars where the daily momentum indicators were short and the filter was long. The bars with the large gray dots closed down and with the small gray dots closed up. When the dots turned black following the third S, that meant that the filter had turned short.

Looking to the bottom right of the chart, after a few bars with black dots rising from a swing low, the bars are then marked with gray triangles, indicating that the momentum indicators turned to long, but were not yet filtered long on the synthetic longer bar length. A buy signal marked with an L is following by a second buy, also marked with an L, which would have constituted a long entry.

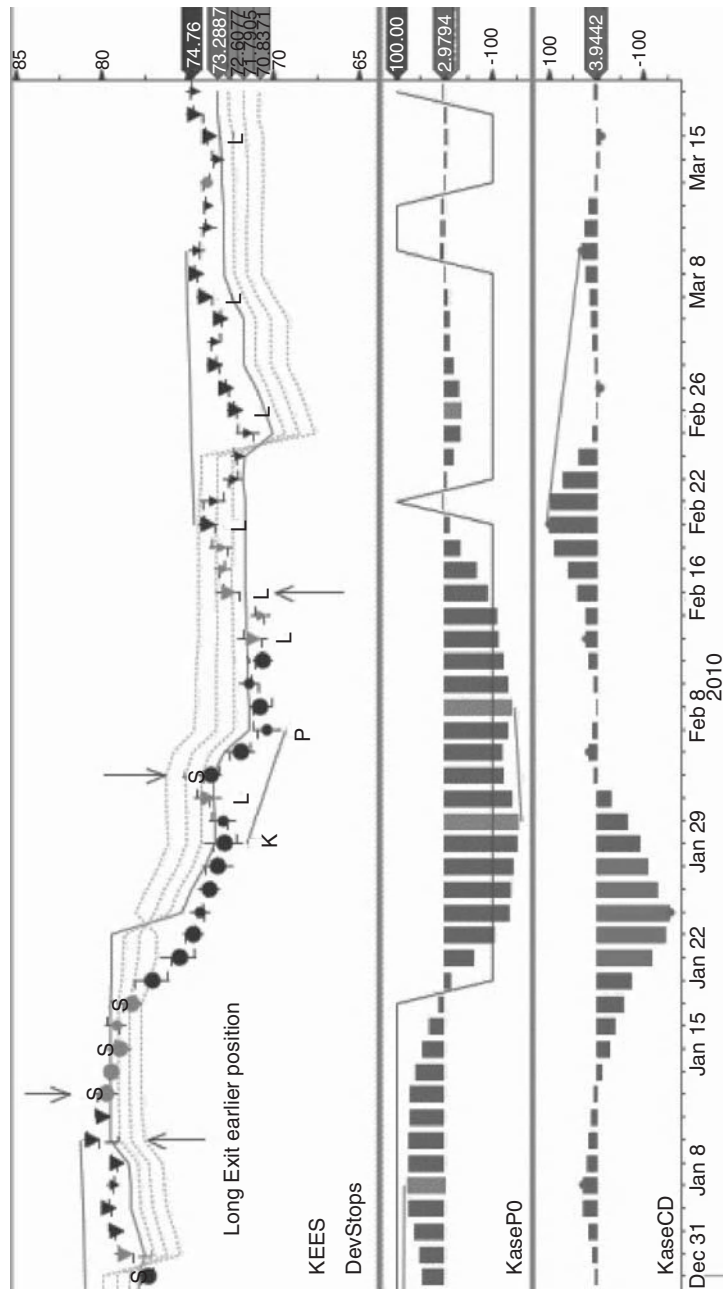
Trading with Kase StatWare

Based on the previous discussion, a short entry would have been taken on the second “S” following the swing high, on January 15. So at that point a short position in CVX at about \$79.23 would be established. On January 19 there are oversold signals generated on the KCD and KPO confirmed on February 2. This would have called for 50 percent of the trade to be exited right away at \$73.58, and 50 percent at Dev1, \$73.98, for an average of \$73.78, resulting in \$5.45 for the trade. (See Figure 4.26.)

There was a renewed short entry on February 4, at \$71.37, followed immediately by another exit signal, this time in the form of a PeakOut and KPO divergence that took place at the same time as a hammer pattern on February 9. This would have called for an immediate exit (80 percent on the signal, 20 percent on the warning line hit), at \$71.31 for a small gain.

A first buy signal triggered on February 11, as shown by the L, followed by a second buy on February 16, triggering a long entry at \$73.52. This position would have held until about April 22, at which point a PeakOut resulted in Dev1 being hit, and a full exit at \$81.20 (80 percent on PeakOut, 20 percent at Dev1). After that no further valid long signals were generated, and after a few oscillations during which no entries were generated the market peaked and turned lower. So KEES along with the KCD, KPO, and the DevStops caught most of the move down and then back up.

FIGURE 4.26 CVX Daily with KEEs and StatWare



Managing a Long-Only Portfolio with KEES

When managing a long-only portfolio, a strategy might be developed where an exit-long trade would call for exiting only a portion of a position, say only a portion of what would normally be exited when trading. A portfolio might be managed on different timeframes, for example, one-third based on daily charts, one-third on weekly, and one-third on monthly.

Let's assume one-third of exposure is being managed on a daily chart; CVX in Figure 4.26 is a good example, commencing with the long exit at the beginning at the chart. If trading in and out, this would have been a full exit of the position based upon a divergence and hitting stops. But with a long-only portfolio, the daily position might be scaled back by up to one-third. An additional one-third might be exited on the second and third S sell signals that followed on February 15 and February 20.

Upon the short exit described in the trading explanation, one-third of the position might be added back, and then another two-thirds on the valid second buy S that took place on February 11.

Kase Bar Chart (Equal TrueRange Bar Chart)

Kase Bars are meant to be equal TrueRange bars. The Kase Bar method creates bars with TrueRanges based on a TrueRange target input by the user, such as 10 cents, 20 points, and so forth. Kase Bar charts look like traditional bar or candlestick charts except that, because the size of each bar is dictated by a target range, the bars are all approximately the same size (range).

Kase Bars are built using either ticks, which is ideal, or small time increments, such as one-minute bars. As the tick or time data are read in, the TrueRange of the current bar is incrementally measured. Once the target is met as close as possible, the close is set, and the bar is written.

Kase Bars improve upon traditional bar types such as minute and constant volume bars because they eliminate time and tick volume as a factor. As a result, the Kase Bars are built based upon prices and the range of prices calculated from them. This eliminates large fluctuations in the size of the bars, creating a smoother data stream. In turn, Kase Bars also generate cleaner and more accurate indicator signals and clear patterns.

In addition, Kase Bars are superior to other equal range bar methods in two ways. First, the bars are equal *true* range, which counts any gaps between the previous bar's close and the current high or low into the bar's range—as opposed to simple range bars, which account only for the high–low range

and leave out gaps. Second, Kase Bars use only real data to form bars. Thus, if there are any gaps, such gaps are shown, as opposed to filling the gap by creating bars using synthetic data.

Therefore, the user can be assured of three things:

1. Market gaps will be displayed, such as breakaway, measuring or midpoint, and exhaustion gaps (which are important in anticipating market behavior), and in identifying candlestick patterns such as morning and evening stars and island reversals.
2. Signals will be generated by real data, that is, by prices that actually traded as opposed to synthetic data, which, by definition, would generate a false and potentially losing signal. This is especially important in backtesting, because, while in a backtest, a synthetic early entry might be triggered, or a nonexistent, but better, stop price. In real life, since those prices did not trade, no action could have been taken and the signal will always show up in retrospect.
3. The real risk as expressed by the true range with actual data will not be masked.

Figure 4.27 is a 30-minute Google (GOOG) bar chart where the average TrueRange over 30 bars fluctuates between \$2.33 and \$2.83. Also shown are a 14-period RSI (solid line) with its 9-period moving average (dashed line). In this simple example, when the RSI line crossed below its average a short trade would be taken, and when the RSI line crossed above its average the position would be reversed to long. So, on March 1, a short trade would have been taken at 8:30 at \$608.0. The short trade would have then been reversed to long on March 2 at 0800 at \$601.5. This trade yielded a theoretical \$6.50 gain.

Figure 4.28 shows GOOG plotted as Kase Bars with a \$2.58 target range, about the middle of the high–low readings for the range of the 30-minute bars. As illustrated, the average TrueRange varies only slightly from the target value. By observation, the Kase Bar chart is much smoother. In actuality, the variation of the minute bars' range was over 3 percent of the range (3.03 percent), and the Kase Bars was just over a half percent (0.65 percent). So the variation of minute versus Kase Bars is over 4.5 times higher.

In addition, the entry signals generated by the RSI also trigger at better levels. In this case, by using Kase Bars, the short trade on March 1 would have been entered 37 minutes earlier at 7:53 at \$612.63. The position would have been reversed 14 minutes earlier, at 7:46, on March 2 at \$599.77. So this trade would have yielded a \$12.86 theoretical gain versus the \$6.50 theoretical gain using the 30-minute chart. That is a nearly 100 percent improvement.

FIGURE 4.27 GOOG 30-Minute Chart with Average TrueRange and RSI

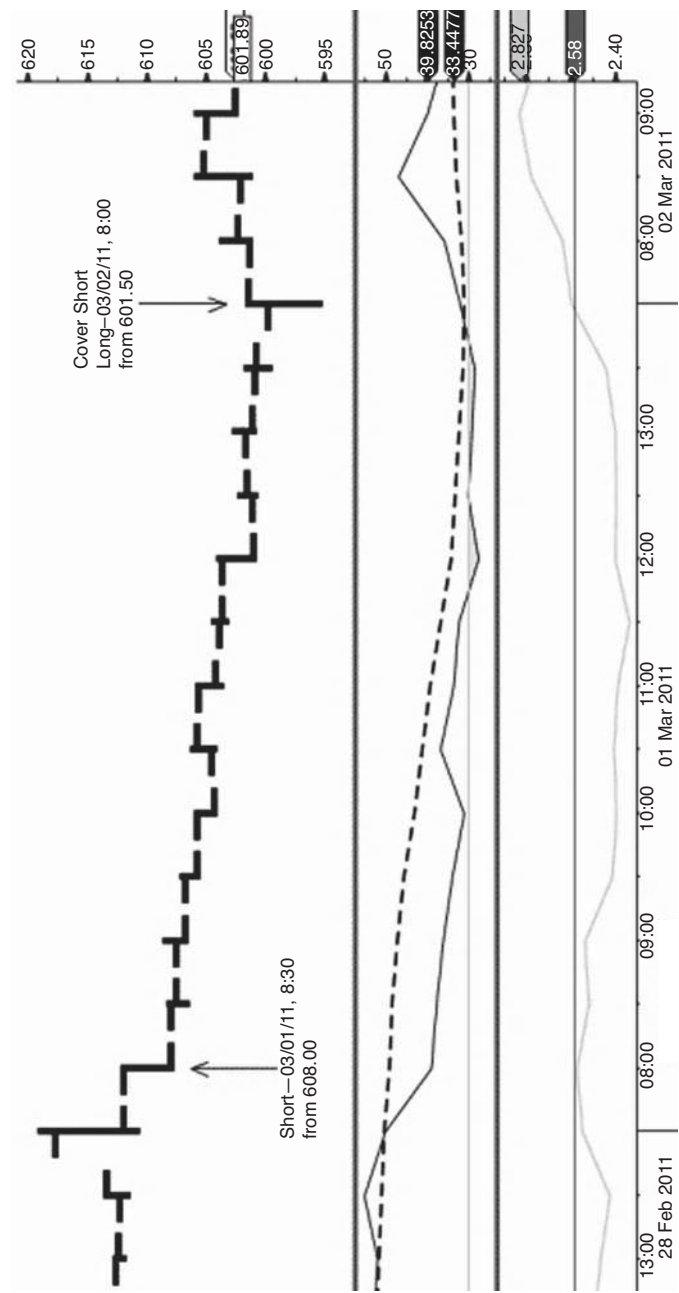
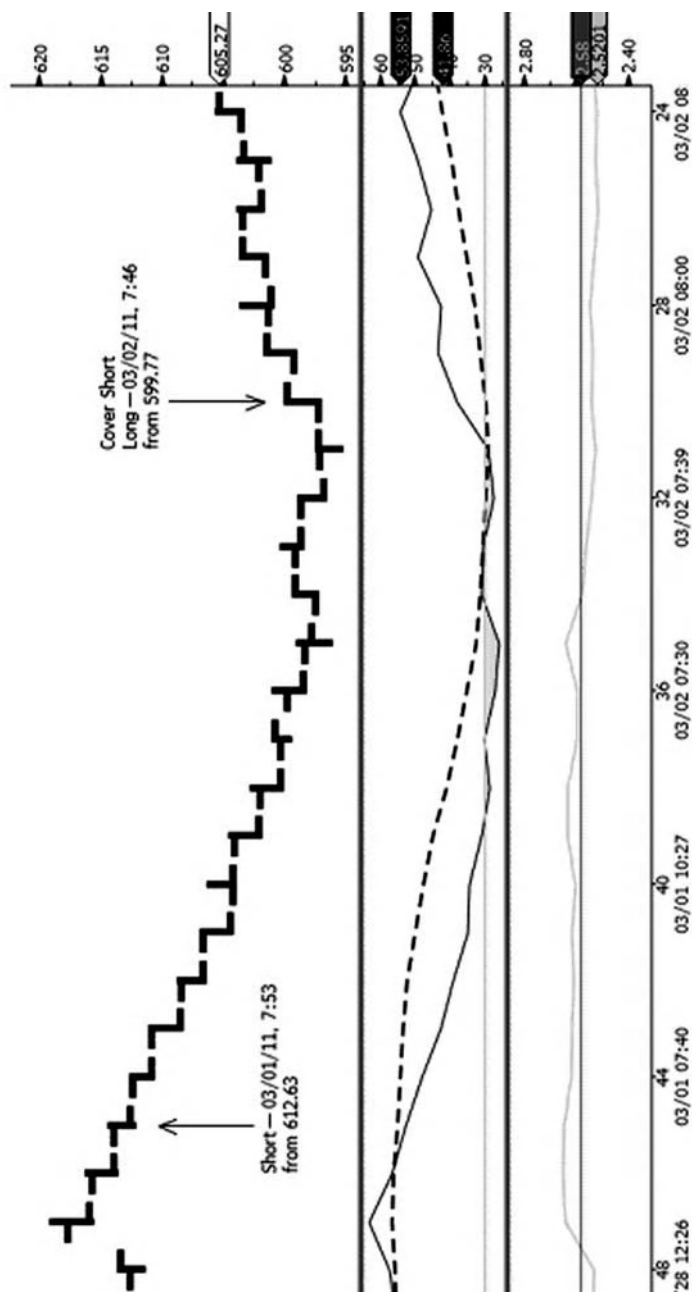


FIGURE 4.28 GOOG \$2.58 Kase Bar Chart with Average TrueRange and RSI



This example is typical of the difference that can be seen by widely varying time bars versus Kase Bars. Here, on the 30-minute chart, large bars formed during the opening hours of trading, followed by smaller-than-normal bars. On the Kase Bar chart, the bars were much more regular. The differences in erratic versus regular bar sizes made a big difference in the signals and resultant theoretical gains.

Summary

In summary, the Kase StatWare™ approach provides a library of indicators that can be combined into a discretionary trading or portfolio management system, which while employing traditional entry and exit approaches provides precise, easy-to-use signals. See www.kaseco.com, www.kasestatware.com, or KASE<GO> on the Bloomberg Professional web site for reprints of Kase articles, for a copy of Kase's manual with full trading rules, or for a trial of the indicators.

CHAPTER 5

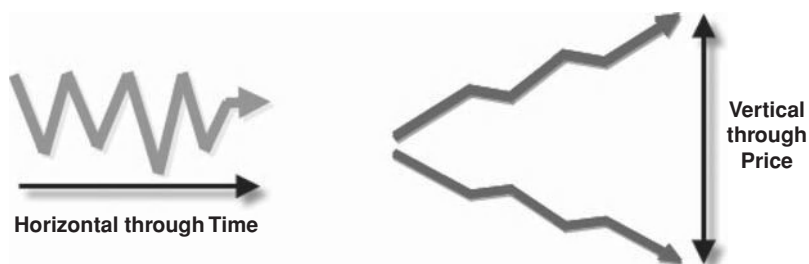
Rules-Based Trading and Market Analysis Using Simplified Market Profile

Andrew Kezeli

TAS Professional, LLC

Markets have only two mutually exclusive movements: horizontal and vertical. And yet, as simple as this is, the majority of market participants' losses occur by just being on the wrong side of the market. Market professionals face a myriad of issues that automated trading systems do not encounter and, for many, overcoming them seems to be a lifelong endeavor. Getting market participants to simplify their analytical approach while concurrently making their approach to technical analysis more rules-based and mechanical has strong merit. This is especially true when backed by trading tools that extract and illuminate what is actually occurring in markets in the present tense—while providing forecasting insight into the next high-probability move. Simplified Market Profile combined with basic Auction Market Theory tenets is a market analysis and trading approach that has proven success factors across all markets.

At TAS Professional we have successfully adapted the core attributes and strengths of classic Market Profile, Auction Market Theory, volume, and volatility analysis—and simplified their presentation into a suite of professional trading and market analysis tools backed by a robust rules-based training and trading approach. Both the tools and the trading approach readily adapt to existing trading methods that we will demonstrate with a review of the core concepts of technical analysis and classic Market Profile.

FIGURE 5.1 Markets Have Only Two Phases: Horizontal and Vertical

Technical Analysis Is Simple in Theory—Difficult in Practice

Ask almost anyone, “What can a market do?” and you’ll most often hear, “Markets can only move up, down, or sideways.” In teaching technical analysis to market professionals worldwide, we further simplify this by saying that market movements are displayed in charts in only one of two mutually exclusive phases: horizontal and vertical.

Markets move either horizontally through time—or vertically through price (up or down)—but never both simultaneously like in Figures 5.1 and 5.2. Yet, as simple as this is, one of the most common sources of trading losses—and therefore among the greatest risks to traders and market participants—is simply being on the wrong side of a market that’s rapidly moving higher or lower through vertical price levels. It is a market that is already moving vertically and fast through price while seeking supply at higher and higher price levels—or one that is unloading supply at lower and lower price levels. Basically, it is an interim trending market versus a nontrending market.

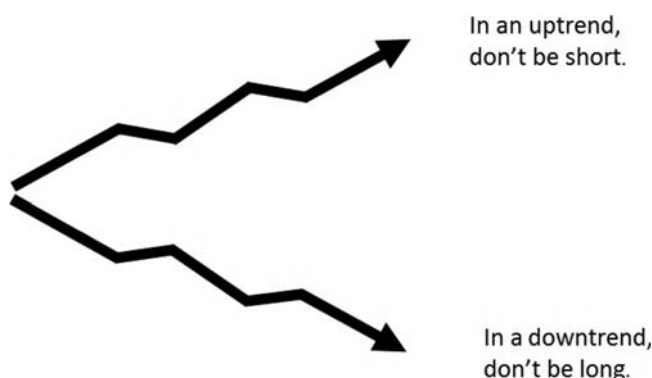
As such, two of the biggest risks and costs in trading are:

1. Simply being on the wrong side of a market phase
2. Using the wrong trading tactics for the phase that the market is in

We have to ask, though: If the majority of a trader’s losses come from simply being on the wrong side of the market, why does this occur so frequently despite well-defined trading rules? One must question even simple rules such as: “The trend is your friend—until the end,” or “In an uptrend, buy higher price pivot lows; in a downtrend short lower price pivot highs.”

We know for certain that there are no certainties in the market, only probabilities. And we can use simple probability concepts to enhance our trading. For example, we can say that when a market is in an uptrend, the lower-probability trade would be to stay away from the short side. At a purely

FIGURE 5.2 Keep Things Simple: In an Uptrend, Don't Be Short; in a Downtrend, Don't Be Long



foundational level the technical analysis method we teach states: “The highest possible high-probability trade starts with the mind-set and very basic rules of: In an uptrend, don’t be short; in a downtrend, don’t be long.”

In sequence, the three rules are actually this simple:

1. Determine which side of the market has a very low or near-zero chance of prevailing.
2. Eliminate that side of the market from consideration.
3. From the remaining two sides, start looking for entries and if none are available, don’t take the trade—or reserve the trade idea for better timing or other technical considerations later.

We can take this one step further and narrow the possibilities to a *single* choice (see Table 5.1).

But as humans—and despite the plethora of trading rules, tactics, methods, and superb literature on technical analysis—market participants have a natural propensity to succumb to perceptual blindness that comes from a variety of cognitive biases, such as:

- Selection bias
- Expectation bias
- Attention bias
- Retention bias
- Distinction bias
- Proficiency bias
- Confirmation bias
- Hindsight bias

TABLE 5.1 Narrow Choices Down to the Highest-Probability Single Event

Eliminated from Consideration	If Market Is . . .	Only Allowable Trading Tactics*
Long side	Sideways	Only short highs in the range
	Downtrending	Only short lower price pivot highs
Sideways	Uptrending	Only buy higher price pivot lows
	Downtrending	Only short lower price pivot highs
Short side	Sideways	Only buy lows in the range
	Uptrending	Only buy higher price pivot lows

*Only allowable trading tactics other than standing aside—which is often the best choice.

- Negativity bias
- Outcome bias
- Distinction bias
- Focusing effect

As *human* market participants, it often happens that we tend to see what we want to see and react based on limited information, while ignoring information that would prevent us from even considering a trade premise. In other words, more information is actually available, but we see only the factors that *confirm* what we are looking for. Warning signs may be in the charts but because of our bias (our perceptual blindness) we ignore the warning signs and go with our gut feelings, which are hardly objective.

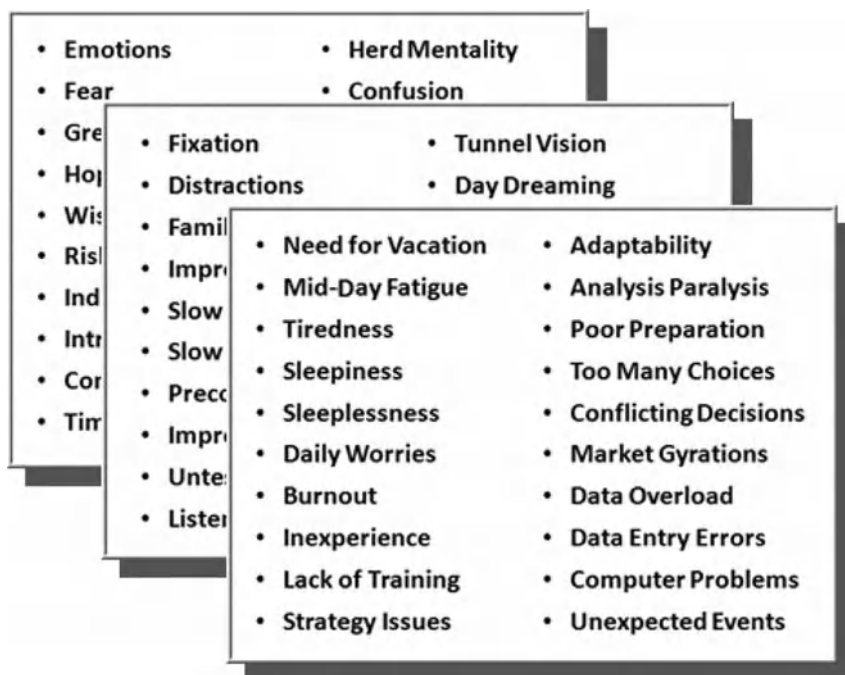
Discretionary traders have more than just their perceptual blindness to overcome. They have dozens and dozens of human factors to contend with that automated strategy trading simply doesn't face, such as those listed in Figure 5.3.

On the other hand, our minds have an amazing power to help us bring order out of chaos. Consider the following example:

I cnduo't bvliece taht I culod aulaclyt uesdtannrd waht I was rdnaieg. Unisg the icndeblire pweor of the hmuam mnid, aocdcnrig to rseecrah at Cmabrigde Uinervtisy, it dseno't mttair in waht oderr the lterets in a wrod are, the olny irpoamtnt tihng is taht the frsit and lsat ltteer be in the rhgit pclae. The rset can be a taotl mses and you can sitll raed it whoutit a pboerlm. Tihs is bucseae the huamn mnid deos not raed ervey ltteer byistlef, but the wrod as a wlohe. Ins't that aaznmig?

Somewhere between our inherent human limitations and the amazing power of our minds lies the answer. Our minds do have the ability to make

FIGURE 5.3 Human Traders Face a Myriad of Obstacles That Automated Trading Is Not Prone To



order out of chaos and, in the trading realm, that means converting random market generated *data* into actionable *information*. We understand these naturally occurring human facets well and have bridged the limitations gap by developing automated strategy trading systems to overcome them. And we have supplemented these systems with adaptive trading and training methods for discretionary traders that harness the natural power of the human mind.

Rules-Based Trading: Automated Strategy Trading versus Discretionary Trading

Automated strategy trading systems overcome human trading limitations because:

- They are mostly driven by market technicals, not fundamentals.
- They are entirely rules based—and they don't break rules.
- They are risk managed with very specific and objective entry, trade management, and exit criteria.

- And most important, the computers running automated trading systems don't question rules or develop biases of their own: they simply do what they are instructed to do—which is a characteristic desired by all market participants.

Our experience in prop trading shows us that simplifying the process of turning massive amounts of trading data into simple, rules-based, actionable information allows market participants to focus on what matters most. We break this information into three categories:

1. **The past:** A clear distillation and read of the *past* and how price, and therefore traders, respond to key areas in the chart.
2. **The present:** Insight into the immediate *present* and what price is trying to do (go higher, lower, stall, etc.), and whether it is succeeding at doing that.
3. **The future:** A glimpse into high-probability price movements and scenarios of the *future* by forecasting what the crowd is likely to do if and when certain price levels and/or key reference areas are hit.

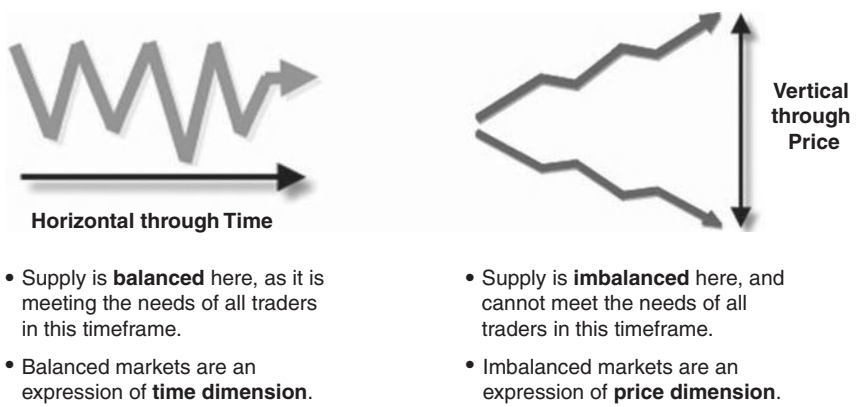
In our training and development of discretionary traders, we decided that we needed to drastically simplify *what* we taught and *how* we taught—to get traders to mimic as closely as possible the inherent rules-based methodologies that are the backbone of automated strategy trading, thereby overcoming the inherent limitations common to so many traders. We knew in our hearts that if we could get traders to eliminate the very *obvious* 10–20 percent of trades where they are clearly on the wrong side of the market, then we could take unprofitable traders to breakeven, breakeven traders to profitable, and profitable traders to even greater heights—and at a lower overall cost, due to fewer yet higher-quality executions.

Balance versus Imbalance: Distinguishing the Two Phases of Market Activity

Our training methodology at TAS Professional starts with a very basic premise: markets are very simple in the sense that they have only two repeatable but mutually exclusive price movements in any particular timeframe: horizontal and vertical (see Figure 5.4 and 5.5).

Horizontal markets are supply *balanced* and move slowly through a relatively narrow price range over time, accommodating the needs of *both* buyers and sellers. And vertical markets are supply *imbalanced* and move rapidly

FIGURE 5.4 Markets Move Either Horizontally through Time or Vertically through Price



through price levels, favoring *either* buyers or sellers—not both. Following is a list of synonyms for these two states or *phases* of market activity:

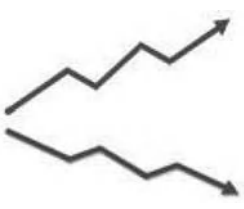
	
Horizontal	Vertical
Sideways	Sloping
Nontrending	Trending
Nondirectional	Directional
Balanced	Imbalanced
Rotational	Nonrotational
Consolidation	Nonconsolidation
Efficient	Inefficient
Nonrandom	Random
Range-bound	Non-range-bound
Bracketing	Nonbracketing
Overlapping value	Nonoverlapping value
Price-controlled	Non-price-controlled
Constrained by liquidity	Unconstrained by liquidity
Moving through time	Moving through price
Slow	Fast
Boring	Exciting

FIGURE 5.5 A Sideways, Nontrending Market Segment

These horizontal and vertical market components are the “building blocks” of all markets. They are building blocks in the sense that, because the two phases are mutually exclusive, when a market is trading in one of the phases, we know what’s next: the other phase. We say that balance leads to imbalance—and back to balance again. We know that a slow, low-volatility, horizontal movement will be followed by a relatively fast, higher volatility, vertical movement, and that a fast, higher-volatility, vertical market will eventually lead back to a slower, horizontal market.

There Are Only Three Market Segments: Nontrending, Uptrending, and Downtrending

All markets are composed of three technical components: nontrending, uptrending, and downtrending segments. Each segment has a specific definition and specific trading tactics. In a simple sense, properly identifying the segment, then applying the proper trading or analysis techniques on the segment, produces the highest-probability outcome.

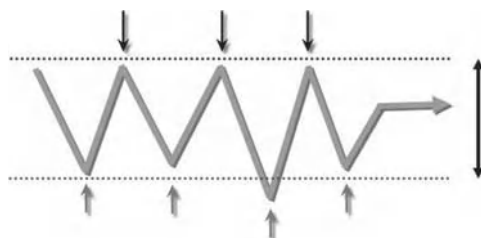
Trading Horizontal Markets: The Sideways, Nontrend

The formal definition of a sideways, nontrending market is a market that is exhibiting two or more relatively equal price pivot highs and price pivot lows (Figure 5.6), as follows:

This is a market that is *constrained by liquidity* on both the supply and demand sides and, hence, the market trades within a relatively narrow range when compared to its vertical and trending counterpart.

We trade sideways, nontrending markets as follows:

- **Long:** Buy only the price pivot lows of the range if you have a higher-timeframe long bias.
- **Short:** Sell/short only the price pivot highs of the range if you have a higher-timeframe short bias.

FIGURE 5.6 Trade Nontrending Markets by Buying Lows, Shorting Highs—or Both

- **Long and short:** Buy the price pivot lows *and* short the price *pivot* highs if you are undecided or ambivalent about the higher timeframe.

Note: Obviously, there are many variations to trading all markets and trends. What we are trying to distinguish here is that, since there are only three trends (up, down, and sideways) but only two basic movements (horizontal versus vertical), the trading tactics for these two movements are decisively different.

As we will discuss, the TAS PRO Indicator Suite™ allows market participants to quickly and easily distinguish between these two market phases and to make high-probability decisions about a market based on market structure and market dynamics. And since the majority of market calls and losing trades occur by simply being on the wrong side of the market, *accurately* knowing which phase a market is in and improving trading odds by decisively eliminating one side of the market from consideration are paramount to making better decisions and improving market calls—immediately.

Trading Vertical Markets: The Uptrend

The formal definition of an uptrend is a market that is exhibiting a series (two or more) of higher price pivot lows and higher price pivot highs (see Figure 5.7).

FIGURE 5.7 A Vertical, Uptrending Market Segment

FIGURE 5.8 A Vertical, Downtrending Market Segment

This is a market that is *unconstrained by liquidity* in that more and more buying volume and/or buyers are coming into the market. Therefore, we typically have higher odds trading in the direction of the flow of capital (going long) as opposed to going against it (shorting this market).

We trade uptrends by buying consecutively higher price pivot lows.

Note: Shorting the price pivot highs—fading the uptrend—is a comparatively lower-odds trade, albeit a trading tactic that many skilled traders use to their advantage.

Trading Vertical Markets: The Downtrend

The formal definition of a downtrend is a market that is exhibiting a series (two or more) lower price pivot highs and lower price pivot lows (see Figure 5.8).

This is a market that is *unconstrained by liquidity* in that more and more selling volume and/or sellers are coming into the market. Therefore, we have higher odds trading in the direction of the flow of capital (going short) as opposed to going against the downtrend by buying this market.

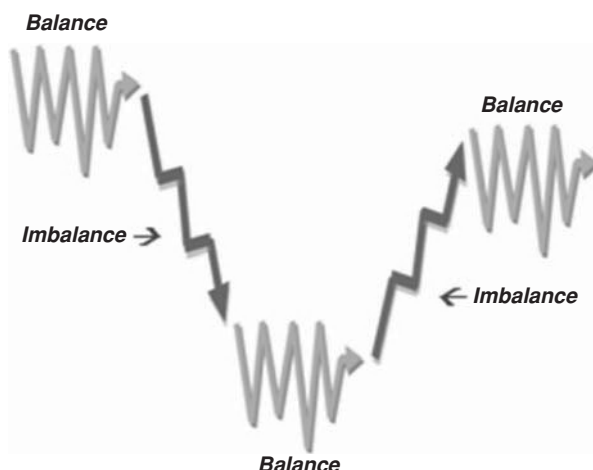
We trade downtrends by shorting lower price pivot highs.

Note: Buying the price pivot lows—fading the downtrend—is a comparatively lower-odds trade, albeit a trading tactic that many skilled traders use to their advantage.

Relative Balance Leads to Relative Imbalance

Each mutually exclusive horizontal and vertical market segment of balance and imbalance repeats in an endless ebb and flow, as Figure 5.9 illustrates.

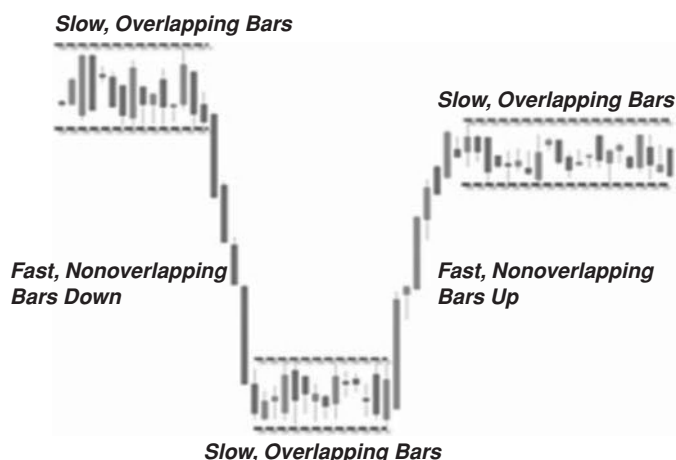
As we have seen, each of these three market components has decisively different trading tactics. Therefore, success in trading and market analysis is dependent on knowing with near-certainty which one of the three market components a market is exhibiting. Having knowledge, experience, and incisive trading tools is a start.

FIGURE 5.9 Relative Balance Leads to Relative Imbalance—and Vice Versa

But if we are looking to get long a market and wait for the market to actually exhibit an uptrend, we will have often missed the lower volatility, lower-risk trading opportunity by the time the uptrend fits the formal definition. Remember, to be considered an uptrend, we need at least two higher price pivot lows and highs. And in our previous discussion, we stated that we often get only what we are looking for, so if we are looking for uptrends to get long, many things look like an uptrend but may in fact not fit the formal definition. How do we resolve these issues?

We resolve these issues with a simple logic premise: rather than look for the beginnings of or confirmation of a new phase, we look for clues that a current stage is coming to an end. For example, rather than look for the beginning clues of an uptrend or a much later (and higher-priced) confirmation of an uptrend, we teach our traders to look for the potential end of current horizontal movement. Or, rather than look for a horizontal market movement (which we know will take at least two relatively equal price pivot lows and highs), we teach our traders how to identify the potential end of a current vertical move.

To understand what some of the market's ending-phase clues are, we need to move from our line-chart illustrations to bar charts for the moment. In bar format, markets leave clues about which phase they are in, based on bar formations. (See Figure 5.10.)

FIGURE 5.10 Each Market Component Leaves Unmistakable and Revealing Clues

Typically, in balanced markets:

- The bars are trading within a well-defined range.
- The bars are also relatively narrow range in amplitude.
- Throughout the horizontal range, the bars tend to overlap each other.
- As discussed, the movement slowly churns through time.

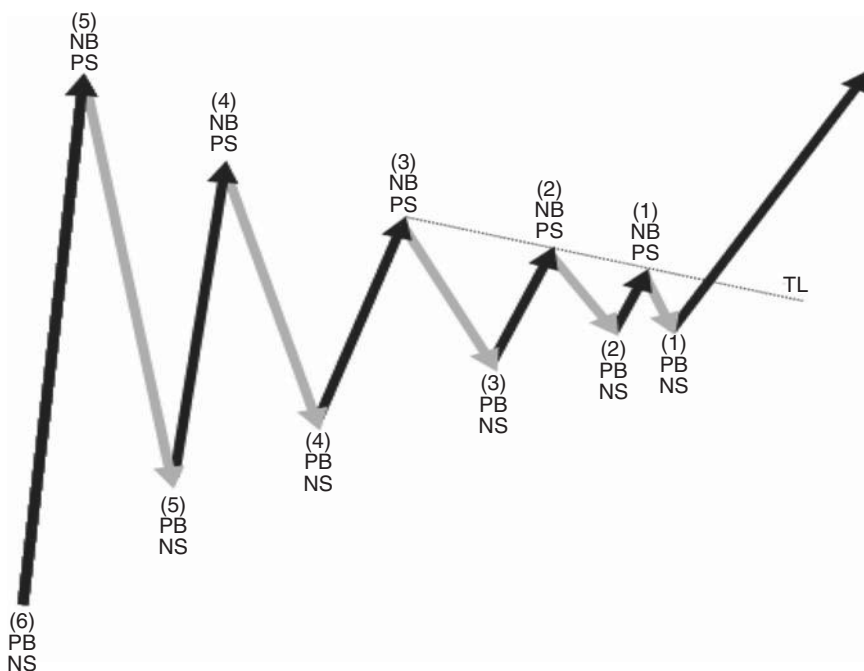
Contrast the foregoing characteristics with bars that are moving vertically once price breaks out of a horizontal range:

- The bars are relatively wider in range (low to high).
- There is very little overlap between bars.
- The open of each new bar tends to coincide with the close of the prior bar.
- As discussed, the movement rapidly moves through price levels (either up or down).

Four Market Participants—and Then a Fifth . . .

The essence of what causes these two disparate market segment formations has to do with how supply is rationed. In a balanced market, supply is rationed between the crowd of both buyers *and* sellers who are able to transact at nearly the same price levels. However, each group of traders in these range-bound markets has a slightly different agenda. Let's consider the example of a range-bound and narrowing market that breaks out, as shown in Figure 5.11.

FIGURE 5.11 Market Participants Have Different Agendas and Respond/React for Different Reasons



There are four primary market participants stacked up in this horizontal formation (refer to Figure 5.11).

1. **PB**—Professional buyers who are correctly buying the lows of the range.
2. **PS**—Professional sellers who are correctly selling the highs of the range.
3. **NS**—Nonprofessional (novice) sellers who are shorting the lows in anticipation of a breakdown.
4. **NB**—Nonprofessional (novice) buyers who are buying the highs of the range in anticipation of a breakout.

As the horizontal formation develops sideways, competition among the four participants increases: both professional buyers and sellers are entering sooner and sooner at higher and lower prices, respectively. And both novice buyers' and sellers' hopes are increasing over time because of the amount of time they had to endure after buying price pivot highs in a range, only to watch the market immediately go lower—or shorting price pivot lows in a range, only to watch the market immediately go higher.

Over time, this increasingly competitive buying and selling narrows the range to the point of diminishing opportunity because even the most perfectly placed buy or sell within the range has no range left within which to move. Throughout this development, volume also tends to decrease as the activity tapers off.

Then an event occurs in the market—perhaps a large buyer enters the market or a news event is announced—that causes the market to break to one side or the other, in the case of this example, to the upside. What happens on the breakout is of particular interest.

- **PB**—Professional buyers who are now net positive, *add* to their existing positions.
- **PS**—Professional sellers who shorted the highs have the tightest stops—and *buy* to cover their positions.
- **NB**—Nonprofessional buyers who anticipated the breakout breathe a sigh of relief that the formation didn't break down—but they tend not to add to their positions.
- **NS**—Nonprofessional sellers are caught off guard and scramble to exit their positions at any cost by *buying* to cover, typically placing market orders in panic.

Lastly, notice the sequence in which these events occur: numbered left to right, as each prior pivot high is exceeded, each of the four groups responds/reacts in kind. The most remarkable part of this breakout is what is significant: all (or most) of the volume in this timeframe moves to one side of the market; in this example, to the upside. And then as each successive prior pivot high is exceeded, more buying volume accumulates as short stops are hit and more new buyers, who were not originally positioned (the “fifth players”) in the move, are following the move up. It is this accumulating and increasing buying that causes the increasingly wider-range bars to form.

Since the vertical movement is fast, being on the wrong side of a vertical move is especially costly since the wrong-sided trade is going against the major flow of capital.

This five-player event is endlessly repeated in all markets and in all timeframes. From a technical analysis standpoint, this is a fairly straightforward market event. Yet again, it begs the question: If this is such a common occurrence and the dynamics of this transitional phase-to-phase event are so well known, why do so many market professionals get it wrong?

We have exhaustively researched and studied this issue in our own discretionary and proprietary trading. To manage trading risk, get market participants

on the right side of market movements, and overcome market participants' propensities toward bias and other psychological factors that cause them to break simple rules, we use principles of Market Profile[®], Auction Market Theory, plus volume and volatility analysis to *clearly* illuminate which of the two phases a market is in and then adjust analysis and trading tactics accordingly.

Market Profile

All market activity can be expressed in terms of horizontal or vertical activity and, during transition from one phase to the next, it is sometimes a combination of both. To what extent either horizontal or vertical movement prevails determines our response in terms of analysis and trading, as follows:

- More vertical and less horizontal calls for trading a trend.
- More horizontal and less vertical calls for trading a rotation.

Since few market movements are all vertical or all horizontal, we use Market Profile to determine the ratio of one phase versus the other. As market professionals, we are concerned with where the market spends time—or *fails* to spend time—and Market Profile is a superior tool to capture this two-dimensional nature of markets in a statistically based, graphical format.

Market Profile was developed by legendary CBOT trader Pete Steidlmayer in 1984 and is a method for organizing data that expresses the vertical (trend) versus horizontal (nontrend) relationship of market data. Market Profile charts illuminate where the auction of a security has taken place and uniquely highlights where the crowd trades, where trading volume accumulates, where trading volume is minimal or absent and, moreover, what the crowd tends to do at the various price levels.

Unlike conventional bar charts (candlesticks, Western bar charts, etc.), Market Profile does not force data into fixed time increments (e.g., five-minute, 30-minute, or daily bars). Rather, it statistically aggregates, organizes, and converts market-generated trading data into a free-flowing, graphical format called *profiles*. These profiles tabulate and display the relative frequency of trading at various price levels that allow market professionals to assess probabilities much the same way that a statistician would evaluate a bell-curve distribution of any data set.

In and of itself, Market Profile is neither an indicator nor a trading system—but it is the backbone of many successful trading indicators, systems,

trading tactics, and methods. Market Profile charts allow market professionals to organize market-generated data on the fly to speed up analysis and accurately convert trading data into meaningful and actionable information. And because profile data is not constricted to fixed time increment bars, Market Profile allows market professionals to organize the data and study a market based on market structure and dynamics.

Classic Market Profile organizes trading data using letters called *TPOs* (Time Price Opportunities—or “That Price Occurred”) to mark each price where a trade occurred. Each consecutive letter of the alphabet demarcates a 30-minute period of market activity. For example, the letter “B” marked the first half hour of trade, the letter “C” marked the second half hour of trade, and so forth.* However, as a market is developing, unlike conventional bar charts, Market Profile *collapses* the data onto itself *to the left* as new price levels are reached. This display method reveals the relative frequencies of traded prices, which is key to determining probability.

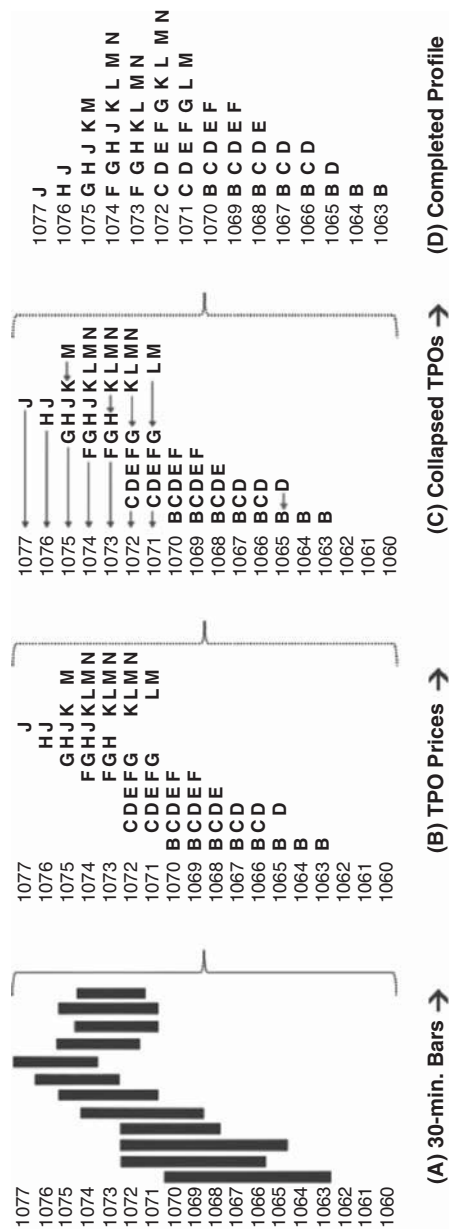
Let’s examine this step-by-step process, as shown in Figure 5.12.

- **A:** Conventional high—low bars display 30-minute trading ranges.
- **B:** We can represent these same ranges by placing letters (TPOs) at each price where trade(s) occurred: “B” marks the first half hour of trade, “C” marks the second half hour, and so forth.
- **C:** As a trade is occurring, Market Profile collapses TPOs onto unused columns or “bins” in the profile graphic.
- **D:** Collapsing TPOs to the left reveals actual price (or volume) distribution that is similar to a bell-curve distribution that graphically organizes relative frequencies of occurrences of data—in this case, price—into “bins.”

Unlike conventional bar charts, this *profiling* format reveals the underlying structure of each profile’s market activity. In bar-chart format (A), one might conclude that the market has an upward bias. And while we would agree with this bias, the completed profile (D) reveals a different picture: a balanced market state. As we will see soon, balance leads to imbalance, which is an either/or state. From balance a market goes either higher or lower. In Figure 5.12, the Market Profile reveals a vital clue that the market is balanced

*Although TPOs were originally developed to demarcate 30-minute periods, any time increment may be used. I remember once asking Pete Steidlmayer, “How did you come up with using 30-minute periods for TPOs?” I was expecting a very scientific answer and instead burst out laughing when Pete told me, “Well, we had to come up with something, right?”

FIGURE 5.12 The Evolution of a Market Profile Graphic



and “resting” and will either balance more—or is getting ready to make the next directional move.

Each letter in profiles displays a price level where trade occurred and, in the completed profile, the “fat” (wide) left-to-right areas accumulated the most trade volume at price while the skinnier (narrow) areas accumulated the least. The widest line of TPOs is called the Point of Control, and it is around both sides of this price level, especially in balanced markets, that all trade occurs. A related Market Profile maxim is stated: “Time at price equals volume.”

Market Profile sheds light and gives market professionals insight on how well a market is facilitating trade and rationing supply because it displays:

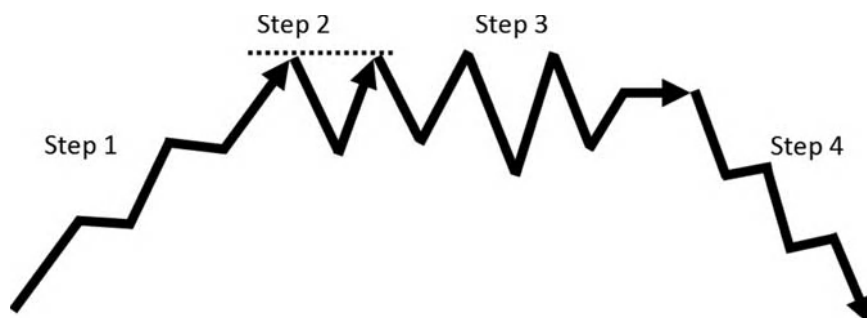
- Market structure.
- Market dynamics.
- Short- and long-term supply and demand and their effect on price.
- Areas where the market spends time versus where it doesn’t spend time—which, in the latter case, has a high probability to move directionally and fast.
- Whether a directional market is speeding up or slowing down.
- What a market is trying to do—and whether it is succeeding at doing it.
- And most importantly, how other traders *in aggregate* are responding and reacting to price movement and key reference areas because it’s their collective volume that moves the market.

These objective attributes of Market Profile allow market professionals to precisely manage risk in some unique ways because they can actually get a feel for a market as if they were trading in a physical market—such as the floor of a commodity trading pit—which in turn allows them to make timely decisions on how a market is accepting or rejecting areas of price and/or how the crowd is perceiving value in multiple timeframes.

Market Movement: The Four Steps of Market Activity

In the early 1990s, Pete Steidlmayer coined the concept of the Four Steps of Market Activity. The Four Steps are an ongoing process that markets go through to factor out inefficiencies. Inefficiencies are the market imbalance phases where the market moves directionally higher or lower to seek out a new fair price to trade, that is, where the market moves back to balance.

The Four Steps concept was based on Steidlmayer’s research of how markets move in a sequence of steps as they seek out an efficient price where

FIGURE 5.13 The Four Steps of Market Activity

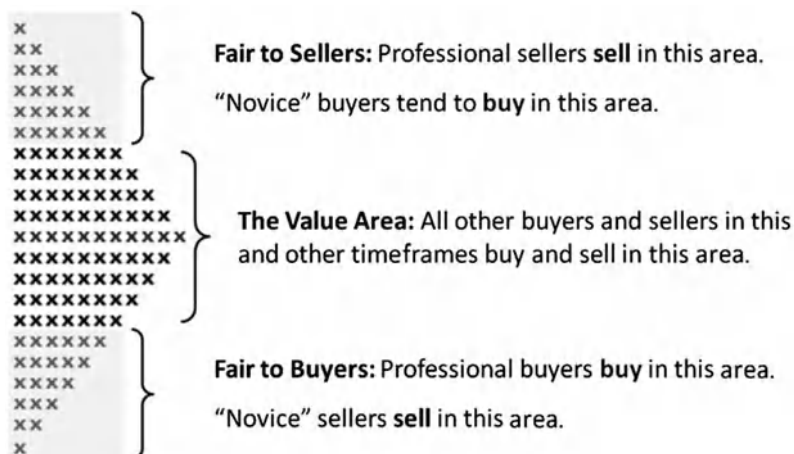
the market can facilitate trade by accommodating both the longs and the shorts. The concept applies to markets in any timeframe (5-minute, 30-minute, daily, tick charts, etc.). According to Steidlmayer, the Four Steps concept is one of the most valuable skills market professionals need to know and apply.

Although markets tend to be more fragmented and less range-bound and constrained by liquidity today than they were in the past, the concept is still valid today and worth further study because:

- It helps orient market professionals to what a market is *trying* to do.
- When a market succeeds at what it is trying to do, it often helps traders get ready for the next move.
- Moreover, when a market skips a step in the sequence, it often leaves better clues as to where the market will make a vertical move.

Let's examine the Four Steps in sequence. (See Figure 5.13.)

1. A vertical move (either up or down) is initiated by a market imbalance.
2. A price in the market stops the vertical move, indicating that the last of the supply imbalance is in place as the dominant group responsible for the directional move withdraws their participation.
3. The market balances in the area of the highs (lows) of the move where two-sided trade occurs among buyers and sellers. This is where the market forms a p-shaped profile from vertical moves up or a b-shaped profile from a vertical move down.
4. The market either *rebalances* the inefficiency of the prior vertical move by moving vertically in the opposite direction, or a new vertical move resumes in the same direction.

FIGURE 5.14 Determining Value Helps Us Know What Is Fairly and Unfairly Priced

We use the four-step model as a general guide to market structure at the beginning of our analysis, looking in particular at whether a market follows the four steps or skips a step. It is when the market skips a step that participants are often caught off guard, and it is also when we look for new opportunities.

Market Structure

One of the basic tenets of Market Profile is the concept of the Value Area, which for each profile is where approximately 68 percent of all trade occurred in a profile.* Figure 5.14 illustrates this concept.

Why do market professionals care about *perceived* value? Isn't the concept of value subjective? It is to a great degree, but Market Profile helps us to objectify value by displaying two mutually exclusive phases of market development: balance and imbalance. The market's collective perception of value is fairly *certain* in range-bound (balanced) markets but value is fairly *uncertain* in trending markets. Once we know the market's collective and interim perception of value or “fair” area to trade—especially in multiple timeframes—then, by default, we know the following:

*The Value Area is calculated as one standard deviation of data above and below the Point of Control, which is the fattest part of a profile, meaning that this is the price level where the most trade occurred.

- We know that price *below* value is collectively considered inexpensively priced merchandise, which is fair to buyers—but unfair to sellers.
- We know that price *above* value is collectively considered expensively priced merchandise, which is fair to sellers—but unfair to buyers.

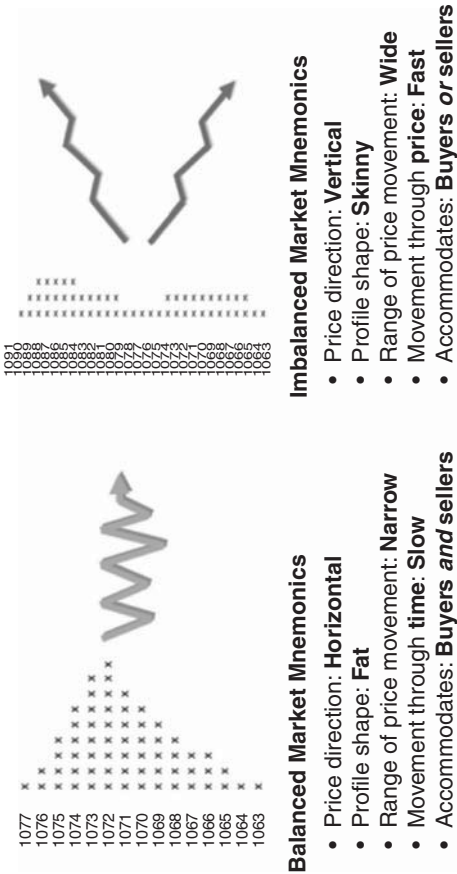
In general, we want to buy what no one wants (at the right time) and sell what everyone wants. For example, we want to become sellers of merchandise that everyone wants and will pay a high price for (think Apple iPhone and iPad), and also buyers of merchandise that no one wants and will sell cheaply (think distressed properties, asset fire sales, etc.). It is this concept that becomes the basis for an objective trading plan that allows professionals to get on the right side of a market movement. To wit, if you think something is cheap and a buy, but the majority of the market thinks that it is expensive and it's a good time to sell it, then buying will most likely result in a loss and waiting will most likely result in better (cheaper) prices. Therefore, when we clearly understand the market's collective perception of value we are in a position to make good decisions from our analysis. Market Profile is the tool that sheds light on this process.

Summarizing our discussion on profiling, Figure 5.15 summarizes the two phases of market activity from which all market moves are derived. Comparing the two formations in Figure 5.15, we derive several market structure axioms.

Areas where volume accumulates in a relatively narrow range of prices—the so-called “Value Area” or “fair” area of trade—accommodate both buyers’ and sellers’ needs for using a market by providing liquidity to both sides of the trade. In this area, supply and demand are in relative balance and markets churn *slowly through time, horizontally* in a chart. A key feature in bar charts of horizontal development is that the bars overlap and become superior support and resistance areas when revisited in the future.

And by default, once we know what is perceived as fair, then above that area, prices start becoming less fair to buyers and favor sellers because price is rising—and below the value area, prices start becoming less fair to sellers and favor buyers because price is falling. These are the areas in the market where either supply or demand exceeds the other on a relative basis and markets move rapidly and vertically through price ranges to accommodate the needs of buying or selling dominance. Price moves higher—faster—to grab the limited supply available; price moves lower—faster—to find limited buyers who are willing to buy merchandise in a falling market. Where price is *unfair* to buyers or sellers, the side that considers itself as disadvantaged will trade less or simply not trade at that level.

FIGURE 5.15 The Unmistakable Characteristics of Horizontal versus Vertical Markets



The Relative Speed of the Market's Building-Block Components

There are four basic guidelines for assembling and then observing these two market components:

1. Fast vertical market movements follow slow horizontal market movements. This is an either/or state. The market will either go higher in price following a horizontal move—or it will go lower in price following a horizontal move.
2. Slow follows fast. After a vertical move, a market consolidates. When slow becomes relatively slower, we are typically approaching the transition point to fast.
3. When fast becomes faster—and more volatile—we are typically approaching the next slow phase in the market.
4. There is one notable but less frequently occurring exception to guidelines 1 and 2, and that is when a market goes from fast to fast; switching directions, it skips horizontal development. These formations are known as V-pivots or inverted V-pivots.

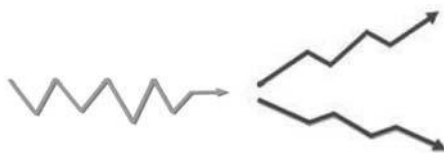
Note: Can a market actually skip the horizontal development phase? Yes, it can—but it's rare when considering that on a smaller timeframe; there is most likely some form of transition from fast to slow—then slow to fast—then faster.

Because one phase follows the other, we can illustrate this slow-to-fast, then fast-to-slow market movement, as follows:

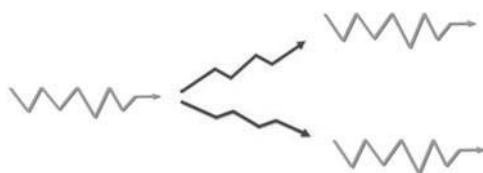
- A market is horizontal and trading slowly through time:



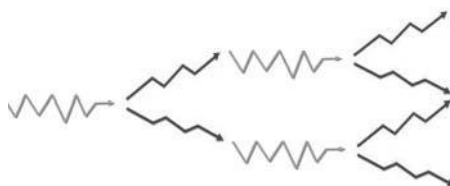
- A supply imbalance occurs in the market, which causes the market to move relatively faster, either higher *or* lower in price:



- Supply and demand come back into balance after either of the prior vertical price movements, and the market resumes a slow and horizontal trading range:



- A supply imbalance occurs in the market [again], which causes the market to move relatively faster, either higher or lower in price:



This simple diagram flow depicts the continuous ebb and flow of the two phases of market activity: horizontal leads to vertical (up *or* down) and vertical leads to horizontal—with few exceptions.

Accurately identifying the two phases of the market is a valuable skill and, once obtained, makes the *practice* of trading simple because it simplifies and provides clarity in two ways:

1. The two phases are mutually exclusive.
2. The two phases are traded differently.

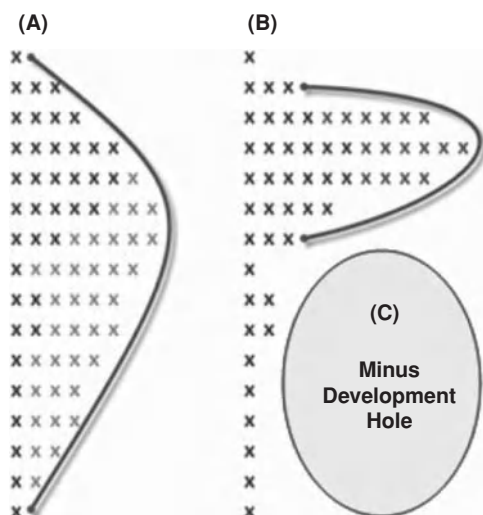
Therefore, once you know which of the two states are being exhibited, then you know how to adapt your trading to the current market conditions. To paraphrase Pete Steidlmayer, stop predicting what the market *might* do. Rather, trade what the market is *actually* doing. Align yourself and your trading style with what is being presented to you.

Vertical Nondevelopment (“Minus Development”)

We’ve taken a look at horizontal development in detail. Let’s now examine what happens in the absence of horizontal development by referring to Figure 5.16.

- **A:** *Efficient* price development accommodates both sides of the trade over time and produces a balanced profile.

FIGURE 5.16 Vertical Price Movements Leave a *Hole* in the Profile Chart—a Key Concept

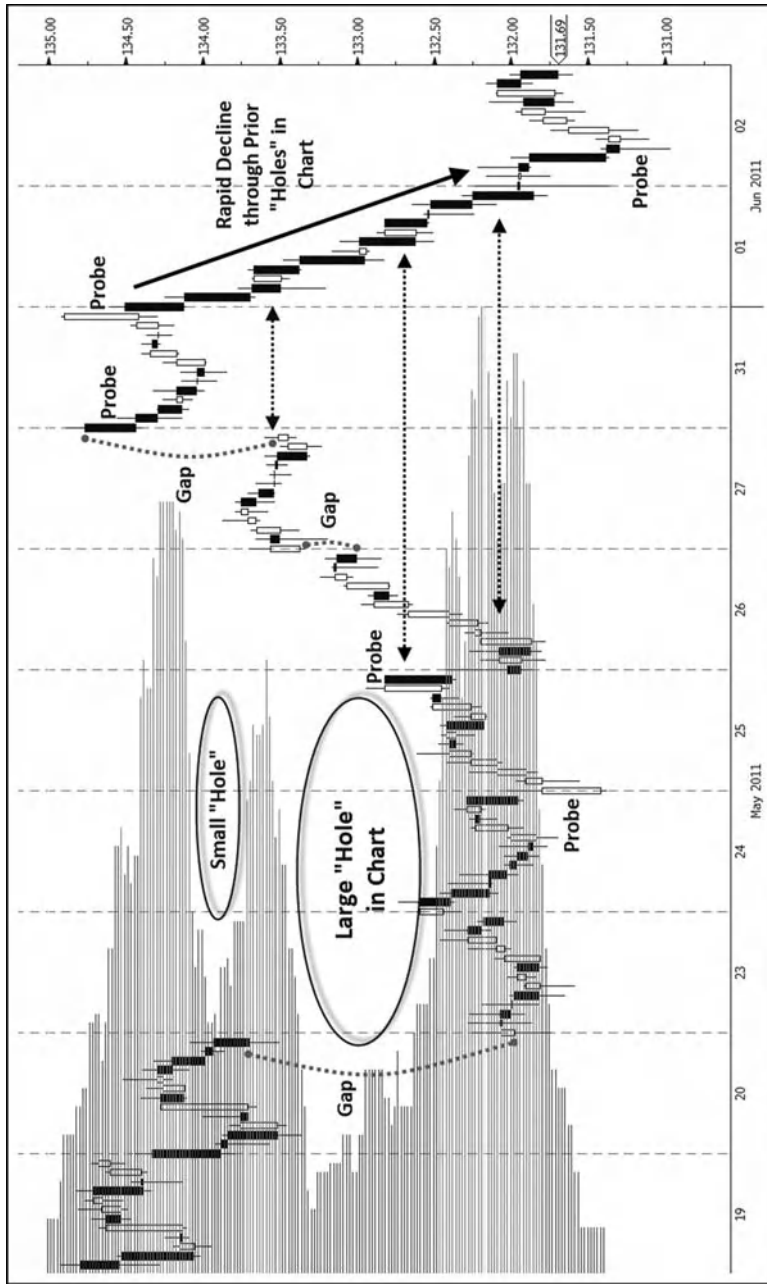


- **B:** *Inefficient* price, or “nondevelopment,” moves rapidly higher (or lower), accommodating only one side of the trade, and results in skipped development in the lower portion of the profile.
- **C:** This leaves a *hole* in the profile chart in the price range where horizontal development did not actually occur—an important landmark in charts.

A key feature in profiles during vertical moves is the lack of horizontal development—or “minus development,” a term coined by Pete Steidlmayer. The faster the vertical move, the less time a profile has to build out horizontally. An extreme example of this condition is an opening gap where no trade occurs in the gap area, and hence, no development occurs in the profile for that gap. These rapid vertical moves are caused by supply/demand imbalances and, in profile terms, this leaves a hole in the profile that, when revisited, has a high probability for fast price movement, as illustrated in Figure 5.17.

- Markets trade relatively fast through holes of minus development—and between areas of horizontal development.
- Market Profile illuminates these holes, which helps traders to prepare for relatively fast vertical moves through the price areas demarcated by the holes.
- The most profitable trades will occur in the quickest amount of time at the lowest relative cost while trading into holes, when compared to trading

FIGURE 5.17 Markers Trade Fast through Holes between Areas of Horizontal Development



multiple up- and down-legs of horizontal development to achieve the same point moves (e.g., one vertical move of five points might take five or more individual long and/or short trades while under horizontal development).

- When compared to multiple trades during horizontal development, traders must have a high degree of accuracy on entry, exit, and direction for *each* trade to achieve the same relative point gain of a single vertical move.
- A single vertical move is an either/or proposition in the sense that we look for a trade into a hole to prevail in the intended direction—or quickly stop out. Notice that the bars marked “Probe” in Figure 5.17 quickly fail, which allows traders to take decisive action with tight stops.
- Trading vertical moves into holes has higher reward-to-risk factors than trading horizontal moves of the same security and timeframe—provided, of course, that a trader is on the right side of the movement.

In profile terms, profiles are either relatively fat, representing horizontal development—or they’re relatively skinny, representing vertical movement. Between the horizontally developed fat profiles, markets move fast vertically and it’s in the vertical moves that market professionals will find greater point moves than in the horizontal. Therefore, where a market has a high probability of moving faster and the speed at which price has the potential to traverse a range are critical distinctions for market professionals to take into consideration.

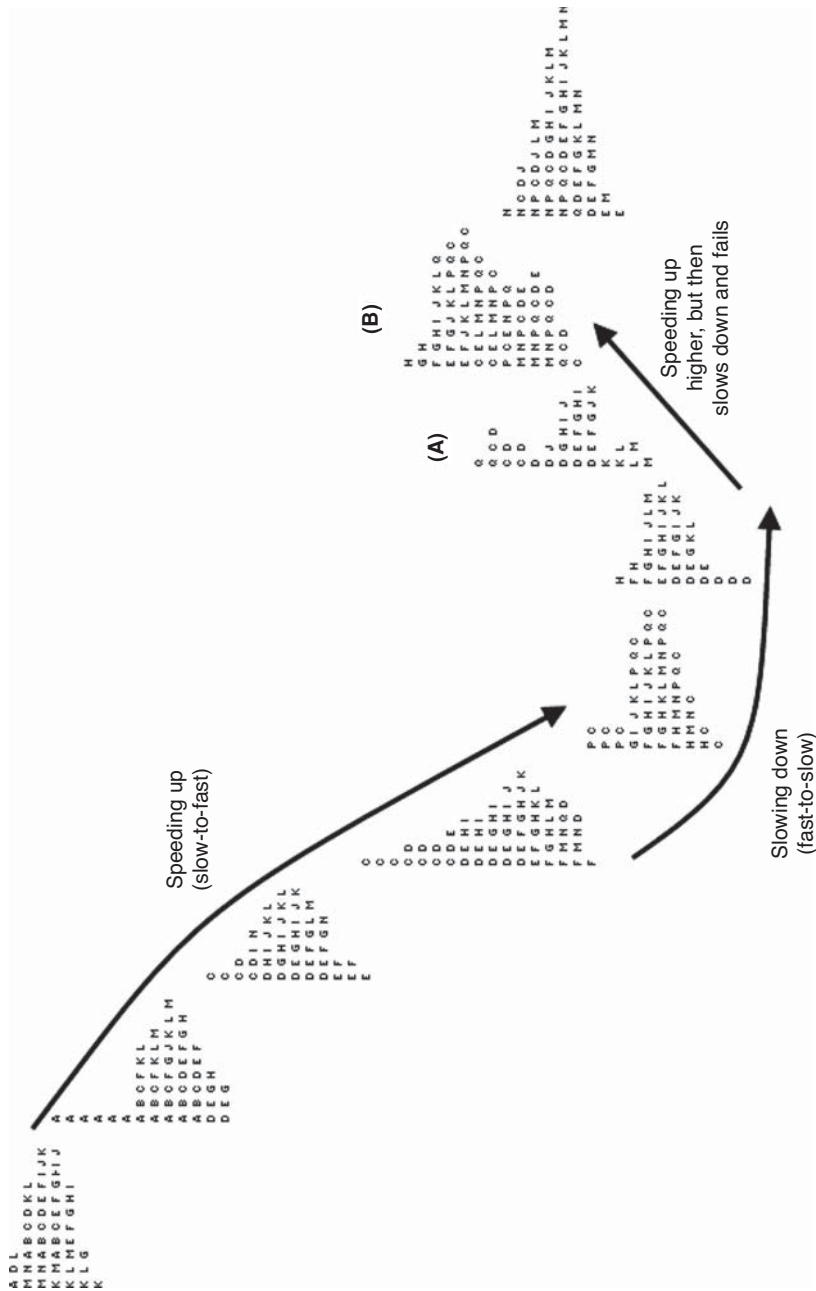
Moreover, markets leave objective clues for traders: fast markets are either getting faster—or slower. And slow markets are either getting slower or starting to speed up. And profiles objectively reveal these conditions: in other words, there are a finite number of choices in our trading guidelines:

- Fast to faster (skinnier and skinnier profiles)—stay with the trade.
- Fast to slower (skinny to fatter profiles)—stay with the trade but tighten stops.
- Slow to faster (fat to skinnier profiles)—get ready for a directional move.
- Slow to slower (fat to fatter profiles)—stand aside (or trade the rotations), mindful that multiple consecutively slower and slower profiles often lead to very fast vertical moves.

Figure 5.18 shows good examples of how these guidelines play out. On the far left of the chart the market starts out slow, then speeds up in the first four profiles, as follows:

- Decreasing horizontal development in profiles
- Increasing vertical range in profiles
- Little overlap between profiles

FIGURE 5.18 Markets Move Slow-to-Fast and Fast-to-Slow



We notice that the market then slows down (more horizontal, less vertical, and more overlap in the profiles). But on the next market speed-up (profile A), the following profile becomes very fat (profile B), albeit with higher lows and highs, indicating another slowdown. This is a valuable clue that selling activity is increasing. So instead of getting faster and faster profiles that would tell us to stay with the move higher or even add to a long position, we have a clear indication to either tighten stops, get ready for an exit, or just watch with increased caution how profile B develops and closes.

Markets are either relatively fast—or relatively slow: but never both at the same time. Furthermore, faster follows slow—and slower follows fast in an endlessly repeating cycle. In fact, when we trademarked the phrase, “Know What’s Next™,” we really meant it. With experience or the right immersive training and trading tools, traders really can know what’s coming next with a high degree of confidence.

As a general rule, we prefer to trade the fast-to-slowdown versus the slow-to-speeding-up because from slow, the next move is fast—but we have less certainty which direction will prevail. On the other hand, if you want to find fast, don’t look for a fast market movement because you’re probably going to be too late. Find the areas where a change from horizontal is starting to take place—the *end* of slow—to be ready for the next fast move. And even if you’re late entering a fast market movement, in most cases it’s hard to get hurt because fast either (a) leads to faster (more profit if you’re on the right side of this movement); (b) leads to slow, in which case you have time on your side to work an exit; or (c) immediately reverses, as is shown on the bars marked “Probe” in Figure 5.17 (as in the case of a less common V-pivot low or high), in which case you take the quick stop.

Simplifying Market Profile

Properly reading and interpreting the market is an endeavor that is as unique of an experience to one person as it is to another. However, when it comes to trading tools, market participants want them to timely and accurately perform seven main functions:

1. Provide intelligence and insight into the broader market structure while at the same time helping to pinpoint precise entries.
2. Speed up analysis of trading conditions in multiple timeframes (and quite often in multiple trading instruments).
3. Improve accuracy in reading the market’s subtle clues of imminent change in market activity, regardless of the timeframe being observed.

4. Improve decision-making ability by offering multiple and simultaneous views and perspectives of varying market conditions and environments.
5. Give a glimpse into the future (forecasting) by allowing market professionals to objectively eliminate one side of the market from consideration while weighing the probabilities of the remaining possible outcomes.
6. Tightly manage risk in all trades while preserving profits in both directional and nondirectional trades.
7. Help market participants relax, observe, analyze, interpret, and make good decisions about high-probability situations while the computer does the laborious background analysis of trading levels, volume, volatility, and the like.

At TAS Professional, we instinctively knew years ago that classic Market Profile provided the right answers to the questions we had about the market. But one of the challenges inherent in classic Market Profile was the steep learning curve associated with gleaning the right information from the profiles. And there was an additional subjectivity in its interpretation that left us wondering: Is there a better way to use the core concepts of Auction Market Theory and Market Profile and yet simplify the presentation to its actionable components?

It was the need to overcome these inherent challenges that lead us to develop the TAS PRO Indicator SuiteTM of trading tools. After seven years of ongoing development, we developed this suite of trading tools that have allowed us, our traders, market analysts, and clients around the world to make some very good market calls using our tools and technology.

Specifically, the TAS PRO Indicator Suite helps market professionals to:

- Clearly read, interpret, and understand where the concentration of crowd activity is located to make incisive interpretations and timely decisions that are suitable to a wide variety of applications.
- Read, understand, and make decisions based on the two phases of market activity—the only two events that repeatedly occur in the market.
- Make better decisions by properly interpreting volume-at-price, time-at-price, volatility, pivot levels, momentum characteristics, and other key market attributes and characteristics in all timeframes.
- Avoid neutral, low-odds areas in the market—saving time, money, energy, and frustration that would otherwise be wasted on “go-nowhere” situations.
- Improve trading odds by being able to eliminate one side of the market from consideration with objectivity.

- Improve market timing and reward-to-risk by understanding where the crowd is demand-supporting a declining market or supply-capping a rising market.
- Analyze and trade the market on their terms according to their tactics, strategies, and methods—which can now be supplemented by the TAS PRO Indicator Suite. These tools were intentionally designed to be additive with the least amount of disruption to existing analysis and trading methods.

We have successfully adapted the attributes and strengths of classic Market Profile and Auction Market Theory into a suite of professional trading and market analysis tools. To demonstrate how we have simplified classic Market Profile, we will start with an overview of three indicators in our TAS PRO Indicator Suite, and then discuss actual trading applications.

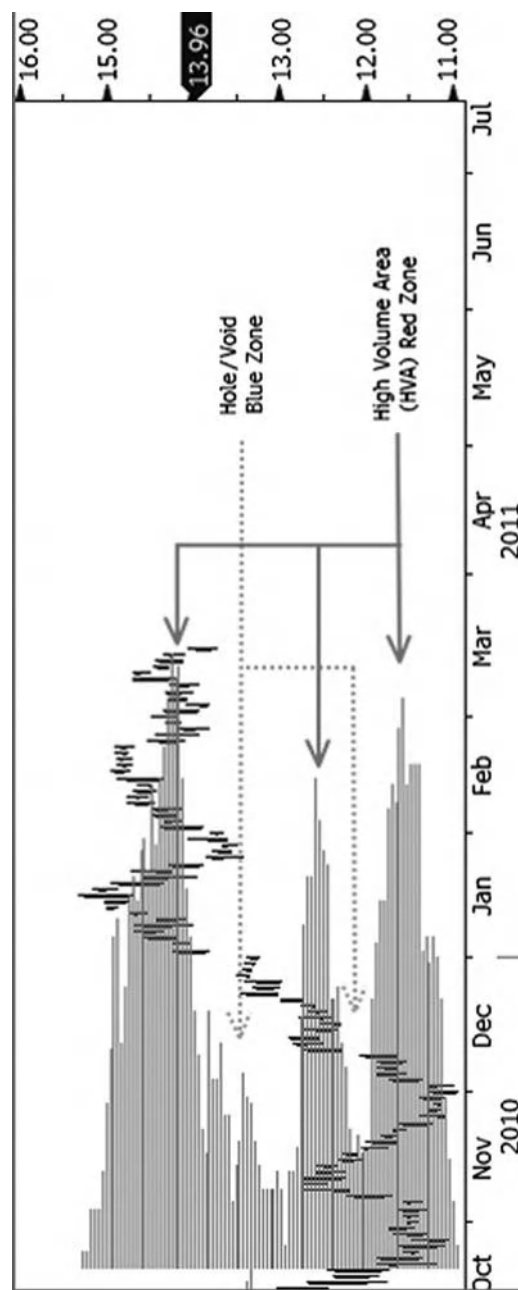
TAS PRO VAP Map

TAS PRO VAP MapTM (Volume-at-Price Map) dynamically calculates and displays a sideways, color-coded frequency distribution histogram that is set to a user-definable fixed number of look-back bars. VAP Map orients market professionals to any timeframe of auction activity by using a volume-at-price “heat map” format (rather than a TPO-based format) to find the areas where the market will most likely move fast vertically through price ranges, versus moving slowly through time horizontally. These volume-at-price maps are overlaid on bar charts and can be set to any look-back and/or multiple look-back period maps on a single chart. (See Figure 5.19.)

VAP Maps can either remain fixed in place or move forward one bar at a time as new bars are printed on a chart. These “profile maps” are overlaid on price bars to graphically represent areas of market balance and imbalance and employ the concepts of statistical probability distribution that have their basis in Auction Market Theory and Market Profile. VAP Maps reflect price action relative to the volume traded within the delineated map area. Five key features of VAP Maps are:

1. Their gradient-rich, intuitive, color-coded display delineates where volume is accumulating—or not accumulating—at price.
2. They provide key insights about where the market is likely to move slowly and develop horizontally through time versus where the market is likely to move rapidly and vertically through price levels.

FIGURE 5.19 TAS PRO VAP Map Illuminates Three Volume-at-Price Distribution (Numbered) Areas and Two “Holes”



3. They are adaptable to any timeframe or tradable instrument that has a volume component.*
4. They have the ability to place multiple right-facing and/or left-facing VAP Maps of different look-back lengths on the same chart.
5. They provide customizable horizontal line resolution with key-area highlights.

VAP Map Applications

VAP Map is the tool we primarily use for our premarket trade analysis and it serves as our roadmap for the day to show where the major capital flows are likely to occur. We additionally use VAP Map for the following applications:

- VAP Maps reveal that markets have the tendency to trade slowly and horizontally within the red areas of VAP Maps and to trade rapidly and vertically in the blue regions of the maps. Purple areas of the maps (i.e., red + blue) represent areas where a market is in transition from one phase to the next.
- VAP Maps are especially intuitive in large timeframes in terms of orienting traders to the general tone and tempo of the market.
- When price is trading inside the red value area, the market bias is horizontal. Anticipate moderate to strong support and resistance at the extremes of the value area.
- When price does break out of the red value area, the market bias is vertical. Anticipate the previous value area and especially the point of control (POC) area to demarcate support or resistance.
- Create multiple, independent, and simultaneously displayed maps to get a broader perspective of several areas of the market and how price and volume-at-price action affects the present market, especially where there is a confluence of activity.

TAS PRO Dynamic VAP

TAS PRO Dynamic VAP™ (Dynamic Volume-at-Price) displays a dynamic representation of developing balance and imbalance areas by measuring volume-at-price, a statistical method for aggregating trading data that has

*For securities that do not have a volume component, such as spot Forex, TAS PRO TAP Map (time-at-price map) reveals profiles on the following basis: since volume accumulation at price = horizontal development, then time at price = volume. As a proxy for volume, we have created an algorithm in the TAP Map indicator that approximates relative volume accumulation by measuring time at price for securities without a volume component.

its roots in Auction Market Theory and Market Profile. Dynamic VAP “profiles” are displayed as a series of three horizontal lines (also known as a “box”).

- The upper line represents the upper resistance boundary of the balance area, the Unfair High.
- The lower line represents the lower support boundary, the Unfair Low.
- The middle line represents the Point of Control (POC).

The profiles are calculated based on the price action from the previous profile and new profiles are derived from a proprietary swing and momentum algorithm that dynamically calculates the next Dynamic VAP profile.

Dynamic VAP orients market professionals to the shorter-term, fast-versus-slow auction that’s occurring within the larger-timeframe auction—as well as smaller-timeframe changes in the perception of value—a key concept. We’ve isolated the slow-versus-fast area of profiles, added a volatility component to the algorithm, and simplified them into a three-line graphic that highlights the area where the markets will likely rotate when price trades inside the lines—and above or below those areas where the markets will move to one side, resulting in a fast directional move.

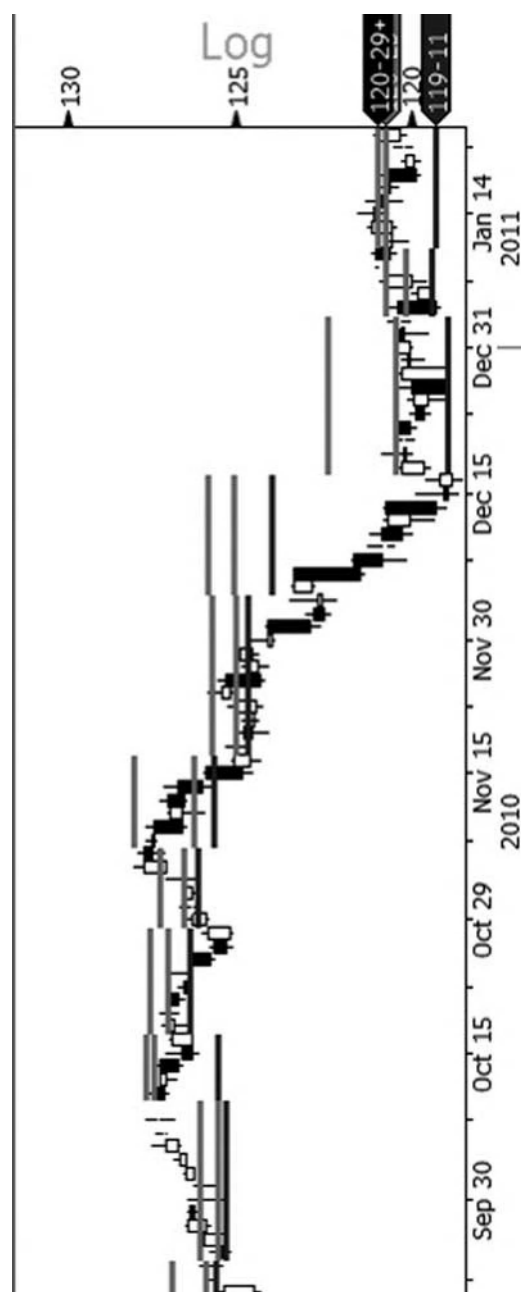
Three key features of Dynamic VAP are:

1. Dynamic VAP is usable on all timeframes for all securities with a volume component.*
2. The longer the timeframe, the more robust are the support and resistance areas that are identified by the unfair low and unfair high.
3. Use it to identify low-risk, high-probability areas to trade while measuring relative volatility.

When price is trading inside Dynamic VAP profiles, it depicts an interim state of market balance, an area of trade that is deemed fair to both sides. New profiles form after the market moves away from balance toward imbalance, when new valuations are detected from market data. When price goes into imbalance, either a new set of Dynamic VAP profiles will form or price will be pulled back into the existing profiles. (See Figure 5.20.)

*For securities that do not have a volume component, such as spot Forex, TAS PRO TAP Map (time-at-price map) reveals profiles on the following basis: since volume accumulation at price = horizontal development, then time at price = volume. As a proxy for volume, we have created an algorithm in the TAP Map indicator that approximates relative volume accumulation by measuring time at price for securities without a volume component.

FIGURE 5.20 TAS PRO Dynamic VAP on Daily U.S. 10-Year T-Note Futures



Dynamic VAP Applications

Dynamic VAP helps eliminate a lot of the guesswork and subjectivity that goes into entering, managing, and exiting trades. For example:

- If we are long above a Dynamic VAP profile, then our stop is below the profile—and vice-versa for shorts. The reasoning behind this is that the areas above and below Dynamic VAP profiles are essentially holes. As we've discussed, the expectation for price trading into holes is that there will be high-probability follow-through and, if not, then the probe higher is rejected fairly quickly for a quick-and-tight stopout.
- Dynamic VAP is an effective trade management tool and forms the basis for our rules-based trading approach. For example, a break above a Dynamic VAP profile tells us: (a) don't be short; (b) get long or be long; and (c) hold the trade as long as price trades above consecutively higher profiles—or exit the trade when price trades into or below the next Dynamic VAP profile.
- When price is bracketed inside a Dynamic VAP profile, the top line is considered a supply area (resistance) and the bottom line is considered a demand area (support).
- When price moves outside the top of a Dynamic VAP profile, then (a) a breakout has occurred, (b) the market bias is directional to the upside, and (c) the relative vertical speed of movement through price levels will likely increase.
- When price moves outside the bottom of a Dynamic VAP profile, then (a) a breakdown has occurred, (b) the market bias is directional to the downside, and (c) the relative vertical speed of movement through price levels will likely increase.
- When breakouts and breakdowns occur above and below Dynamic VAP profiles, there is a high probability that the new directional move will remain intact until a new Dynamic VAP profile occurs.
- Previous Dynamic VAP profiles to the left in the chart are support or resistance areas where the market will either pause and reverse—or pause, consolidate, and then resume the current directional move.
- Dynamic VAP profiles that are narrower (top to bottom) area relatively lower-volatility states and provide relatively lower-risk entry opportunities, compared to wider Dynamic VAP profiles, which are relatively higher-volatility states.
- When price is trading inside a Dynamic VAP profile, we look to buy the lows in the range and/or short the highs. To improve trading odds in this situation, we give directional preference to higher-timeframe trends.

TAS PRO Navigator

TAS PRO Navigator™ is a versatile indicator that combines several signals to assist in market analysis, getting on the right side of the market, and managing trades. TAS PRO Navigator provides several types of actionable information about underlying trading conditions and is a composite indicator that combines classic trend and volatility indicators to highlight trend, non-trend, momentum, potential exhaustion, and reversal points. (See Figures 5.21 and 5.22.)

Five key features of TAS PRO Navigator are:

1. Rich, colorful display of multiple algorithms that is usable on any time-frame.
2. Indicates which side of the trade to be on, where there is the highest probability of going in the direction of capital flow, and which side to avoid, where there is lesser capital flow.
3. Measures momentum and relative strength or relative weakness of underlying trend.
4. Indicates price divergence and peak conditions.
5. Shows shifts in market conditions from one phase to the next: uptrend, countertrend short, downtrend, and countertrend long.

TAS PRO Navigator Applications

TAS PRO Navigator is a very suitable companion indicator to Dynamic VAP and Dynamic TAP. While the latter indicators focus on profiling aspects of market analysis, TAS PRO Navigator's color coding assists market professionals in making quick assessments of market conditions including trend exhaustion.

- When the TAS PRO Navigator histogram is green or red, either a long or short trend, respectively, is in place.
- When the histogram switches color from green to dark green—or from red to dark red—trend momentum is slowing and countertrend trade opportunities may be indicated.
- Magenta bars indicate trend exhaustion/peaking trend conditions and potentially indicate the end of a trend. This is a relatively high-probability event, however; traders may want to time their exits using other TAS PRO indicators, such as Dynamic VAP or Dynamic TAP.
- Use the color-coded zero line to quickly assess relative volatility as well as identify broader areas of support and resistance. Yellow indicates a

FIGURE 5.21 TAS PRO Navigator on Daily 10-Year T-Note Futures

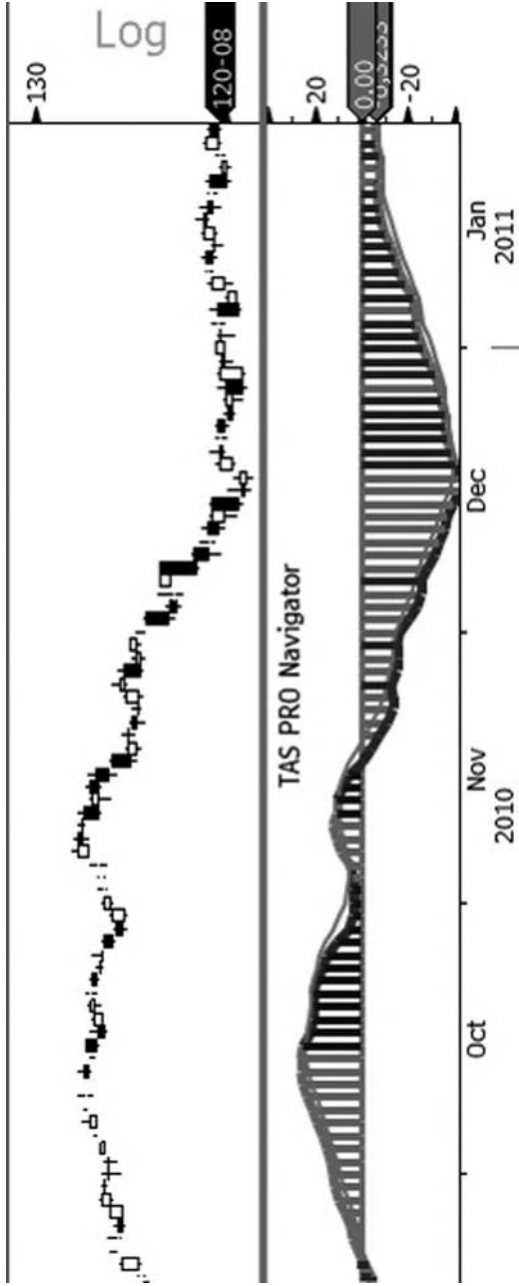
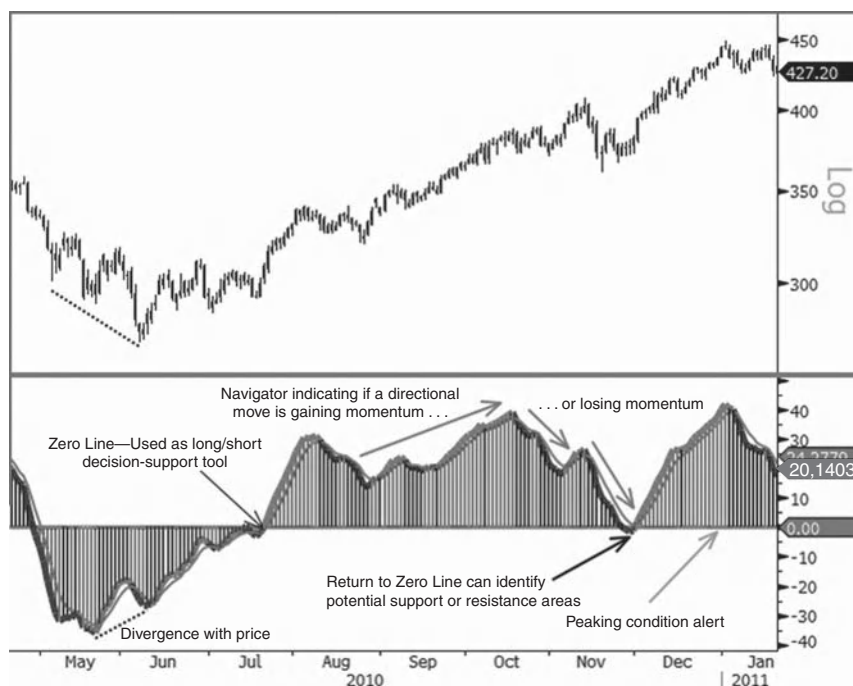


FIGURE 5.22 TAS PRO Navigator on Daily Copper Illuminating Directional Bias and Momentum Indications



market that is supply balanced; cyan indicates a market that is supply imbalanced.

- Relative peaks of the Momentum Histogram will provide further insight on momentum. Consecutive histogram peaks further away from the zero line indicate increasing momentum, and consecutive peaks closer to the zero line indicate decreasing momentum.

Rules-Based Trading and Analysis with TAS PRO Navigator

TAS PRO Navigator assists our traders in perfecting market call timing and, moreover, clearly shows what not to do, what to do, and when to execute—if at all. This simplified and objective method allows us to risk-manage our trades in several ways:

- Helps us measure reward to risk for each trade based on trading a fast market segment between two areas of slow market movement (consolidation).

TABLE 5.2 TAS PRO Navigator Color Coding Orients Traders to Rules-Based Trading

Momentum Histogram Color	Market State	Suggested Action for Our Prop Traders
Green	Uptrend	Get long, stay long
Dark green	Uptrend in pullback	Consider countertrend shorts
Red	Downtrend	Get short, stay short
Dark red	Downtrend in pushback	Consider countertrend longs
Magenta	Trend exhaustion	Tighten stops on longs or shorts

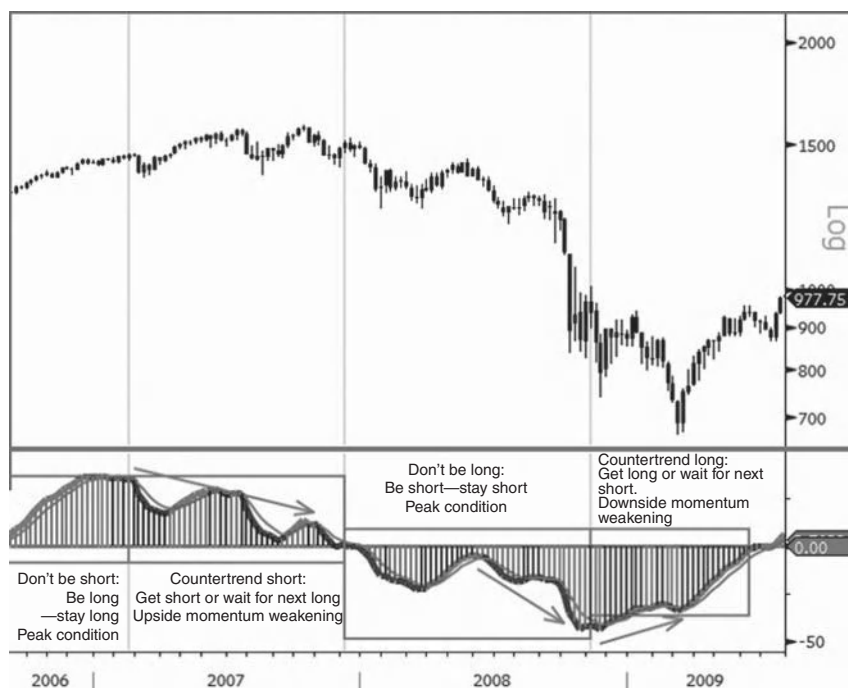
- Helps us eliminate from consideration the one side of the market where price has very low odds of going (e.g., trying to short an uptrend, not for the countertrend pullback, but for a new downtrend).
- Allows our traders to follow very specific trading rules based on the indications from our trading tools, while removing most of the burden of past price/volume analysis. This allows traders to focus on what's actually occurring rather than what traders would like to have happen.

We developed TAS PRO Navigator to orient our prop traders to the rules-based trading methodology taught in our TAS PRO Approach to Trading and Market Analysis courses. Based on color coding of the momentum histogram, market participants can readily orient themselves to the current market condition in any timeframe, as shown in Table 5.2 (for full-color examples of this color coding, please visit <http://tasprofessional.com/bloomberg/indicators-navigator.php>).

In addition to the rules-based color coding built into TAS PRO Navigator, it is an effective tool for analyzing momentum strength and weakness. Notice in Figure 5.23 that the S&P futures were in an uptrend during 2006 and 2007, fitting the price definition of a series of higher peak highs and higher peak lows. TAS PRO Navigator, however, was divergent and exhibiting lower peak highs and lower peak lows.

While we could use TAS PRO Navigator in this instance to time our entries into shorter-term countertrend pullback trades against the uptrend, a potentially much larger situation was brewing: uptrend momentum was stalling. Knowing that momentum was stalling, we could use this shorter-term entry strategy to leg into a potentially longer-term move that eventually did occur in 2008. In this case, rather than wait for confirmation of a breakdown

FIGURE 5.23 TAS PRO Navigator on Weekly S&P 500 E-Mini Futures Countertrend Strategy



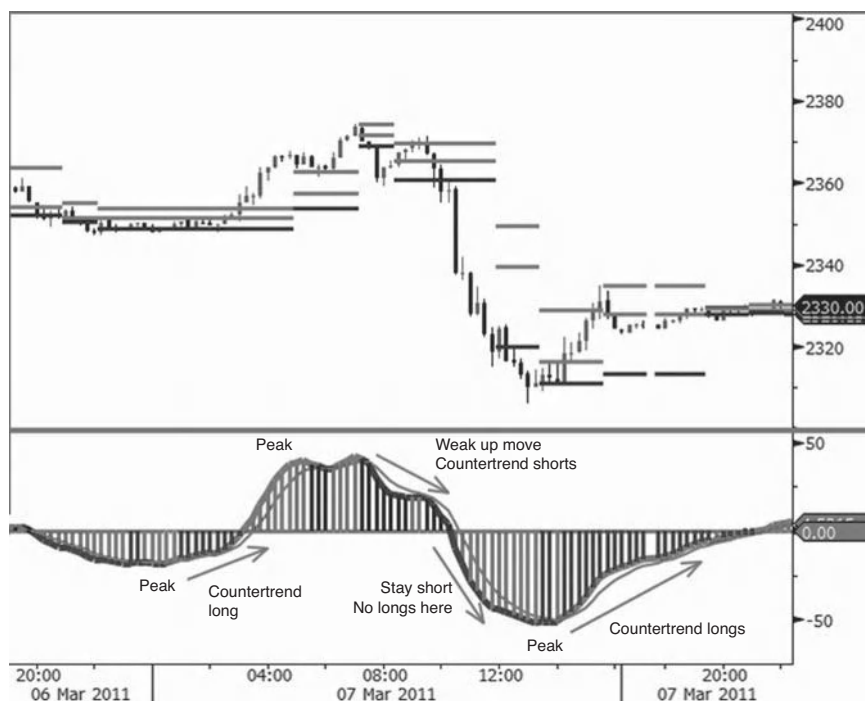
and resulting downtrend, we use TAS PRO Navigator's clues to leg into a short position while the market is still in an uptrend.

TAS PRO Navigator includes a statistically based algorithm that displays magenta-colored bars in the histogram when it detects peak market conditions. We know, for example, that markets will trade directionally higher until they encounter prior supply levels where they will typically pause to absorb that supply. So while Dynamic VAP (or TAP) indicate how efficiently (in balanced markets) or inefficiently (in imbalanced markets) a market is rationing supply, TAS PRO Navigator can provide vital clues where a trending market is getting tired, eventually leading to exhaustion. Figure 5.24 illustrates these concepts.

TAS PRO Indicator Application Examples

According to the TAS PRO Approach to Trading and Market Analysis™, there are only a limited number of trade types and trade locations to consider.

FIGURE 5.24 TAS PRO Navigator and Dynamic VAP on Intraday NASDAQ E-Mini Futures



The steps to determine your actions are to first identify the phase of market development (vertical or horizontal) and whether it is early in that phase or late. Next, identify the Areas of Opportunity within vertical or horizontal development. Once these are determined, trade locations can be identified and appropriate trade tactics can be applied to each situation.

The four market development phases to distinguish in higher and then lower timeframes are:

1. Mature balance (mature horizontal development)
2. Early vertical development
3. Mature vertical development
4. Early stage of balance (early horizontal development)

A *mature balance area* is a range with relatively equal highs and relatively equal lows and many overlapping swings within the horizontal range. When viewing the volume profile (TAS PRO VAP Map), it will most often

show a sideways bell-shaped accumulation that includes a High Volume Area and Point of Control that is approximately centered. It doesn't have to be symmetrical but often is.

Note: We make a distinction between a profile map's Point of Control versus a High Volume Area, as follows:

- The Point of Control (POC) is the price containing the highest volume accumulation in a volume-at-price distribution. This also applies to the highest accumulation of time at price in a time-at-price distribution. The POC of a VAP Map or TAP Map distribution is colored light green.
- A High Volume Area (HVA) in a profile map is an area of pronounced high volume-at-price on the vertical scale in comparison with surrounding volume above and below. The peak of the bell-shaped curve often forms in a volume profile during horizontal development but it can also refer to an area of high volume-at-price in a phase of vertical development. The important key is that there has been much greater trade activity and volume compared with surrounding prices. VAP Map clearly identifies the HVAs in any timeframe with a red or magenta color. (For full-color examples of this color coding in TAS Professional profile maps, visit <http://www.tasprofessional.com/bloomberg/indicators.php>.)

A balance area can be considered mature by taking on these characteristics in its volume accumulation at price (volume profile) or in its time accumulation at price—or both. The process of a balance area becoming mature is a graduated spectrum and is not a suddenly definable event. Discretion is required to determine relative maturity of a balance area; however, these guidelines will allow you to make a reasonable determination. (See Figure 5.25.)

Early stage vertical development most often follows horizontal development, the only exception being in the case of a V-pivot reversal. Typical price action in transition to this phase will be a price movement away from the HVA of a balance area and outside of the extremes of the balance area. The character of this movement is most often described by terms such as *sharp*, *forceful*, *persistent*, or *aggressive*.

When a market is in balance, the HVA often acts as a magnet attracting price and accumulating volume. When a market is making a transition from balance to vertical development, the price action around the HVA will often change in character. For example, instead of acting like a magnet, it begins to repel price in an increasingly sharp manner. This is often an indication that the phase of mature balance (mature horizontal development) is over and the market is transitioning to early-stage vertical development. (See Figure 5.26.)

FIGURE 5.25 TAS PRO VAP Map on Daily Gold Chart

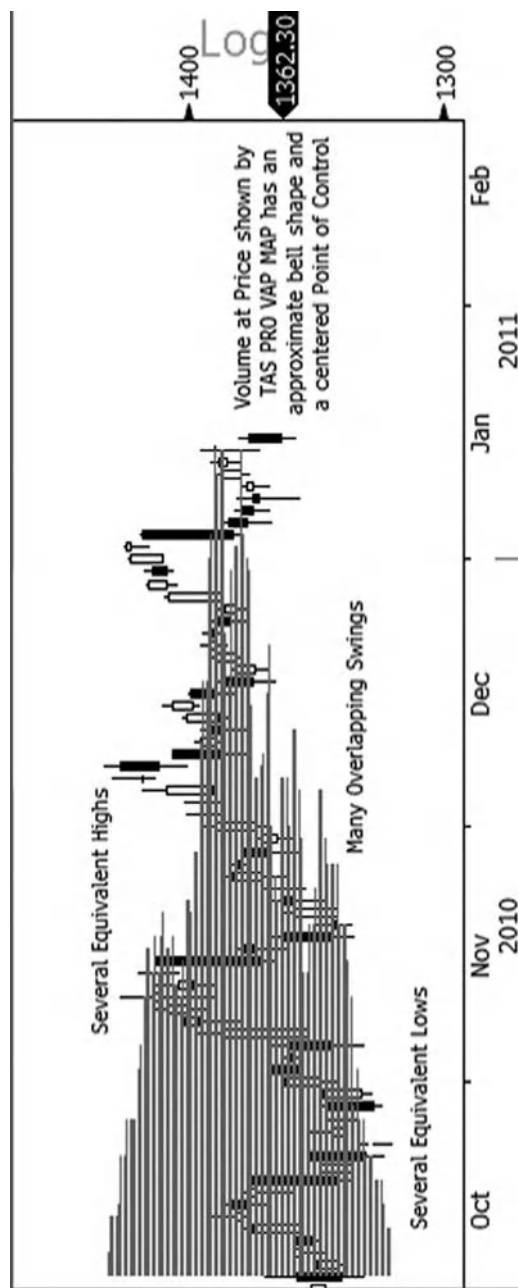
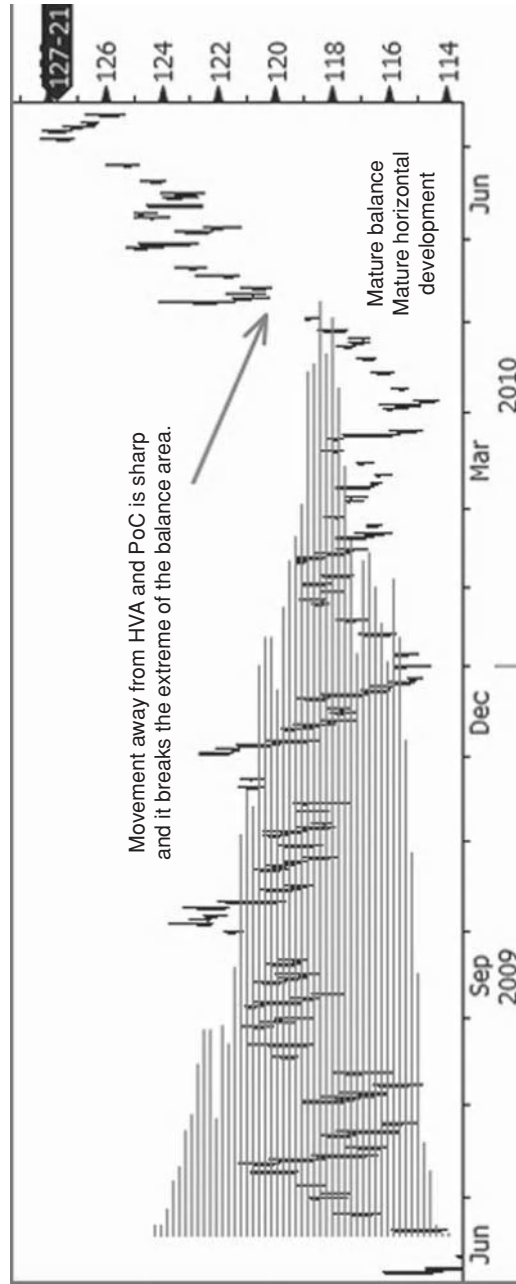


FIGURE 5.26 TAS PRO VAP Map on Daily Chart of U.S. Bonds Highlights a Strong Breakaway from Point of Control



Mature vertical development describes the phase of market development that occurs at or near the end of a vertical, trending move. Indications that a phase of vertical development is mature can include a slowing of the price movement (i.e., a formation of balance on a smaller timeframe), a decreased slope of price movement, greater overlap and retracements of the price bars, weak internals to the price movement, divergences in volume, or divergences in indicators such as TAS PRO Navigator. Smaller countertrend moves will begin to break initial support/resistance areas that have previously held. (See Figure 5.27.)

TAS PRO Navigator is one of the tools we use to give an advanced indication that a stage of vertical development is ending. The appearance of magenta bars is a high-probability indication of peaking conditions. When magenta bars appear, you should be on high alert that the market may be ending its trending move and transitioning to a phase of balance (transitioning from vertical development to horizontal development). This is most often the time when our traders are tightening their stops on directional trades.

Once a phase of vertical development is over and a stopping price has been established, *early stage horizontal development* is defined by the development of a range (defined low and high). Tests of the range extremes will have yet to take place or will presently be taking place (first or second tests). The volume profile or time-at-price profile will look malformed/immature (meaning it will not resemble a symmetrical bell-shaped distribution) and a somewhat centered High Volume Area (HVA) will not yet be established.

Dynamic VAP and Dynamic TAP are very sensitive to detecting rotational price behavior and give an advanced indication that the market may be entering early stage horizontal development. The appearance of a new Dynamic VAP or Dynamic TAP that brackets the current price is an indication that the tool has identified rotational behavior and that the market may be entering horizontal development in the timeframe under observation. (See Figure 5.28.)

Once we've established which stage of market development is in place, we then identify the Areas of Opportunity, which are different balanced versus imbalanced markets. In balanced markets, the Areas of Opportunity are:

- Range extremes—high and low of the balance area or distribution.
- If the phase of horizontal development is mature, it's the POC of a mature balance area.

In imbalanced markets, the Areas of Opportunity are:

- When a market is in vertical development up, prior swing lows and Unfair Lows of Dynamic VAPs.

FIGURE 5.27 TAS PRO Navigator on Daily Chart of Silver (SLV) Identifying Bearish Divergence

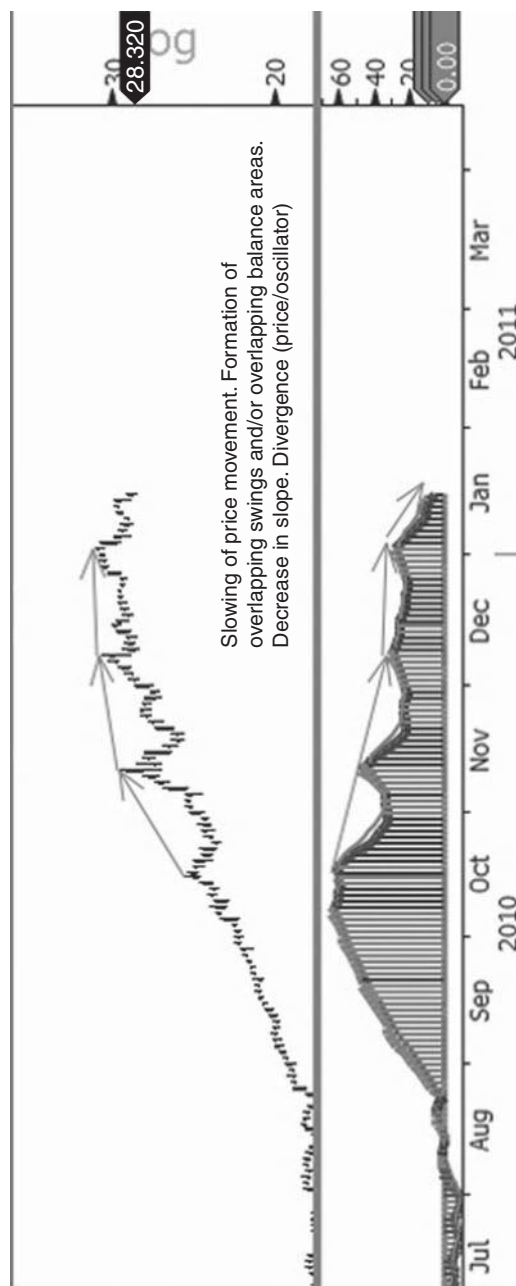
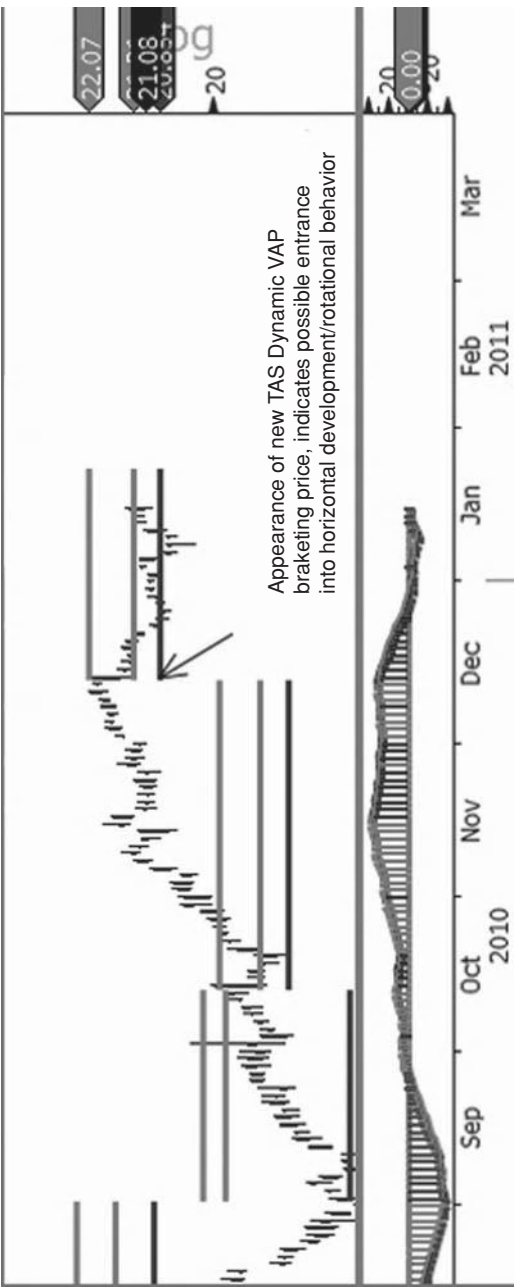


FIGURE 5.28 TAS PRO Dynamic VAP and Navigator on Daily Chart of Intel Corp Suggesting That a Range-Bound Market Is Developing



- When a market is in vertical development down, prior swing highs and Unfair Highs of Dynamic VAPs.
- Smaller-scale HVAs formed as the market trades/trends.
- Price level where one-sided volume enters or volume becomes distinctly one-sided, the result being a significant vertical move in one direction. The starting point/price of this kind of vertical move is a future potential area of opportunity.

Refining Market Analysis and Trading Using TAS PRO Dynamic VAP

Dynamic VAP offers a dynamic representation of developing balance versus existing imbalance using a proprietary three-line display that is a proxy for actual TPO-based profiles as is shown in Figure 5.29.

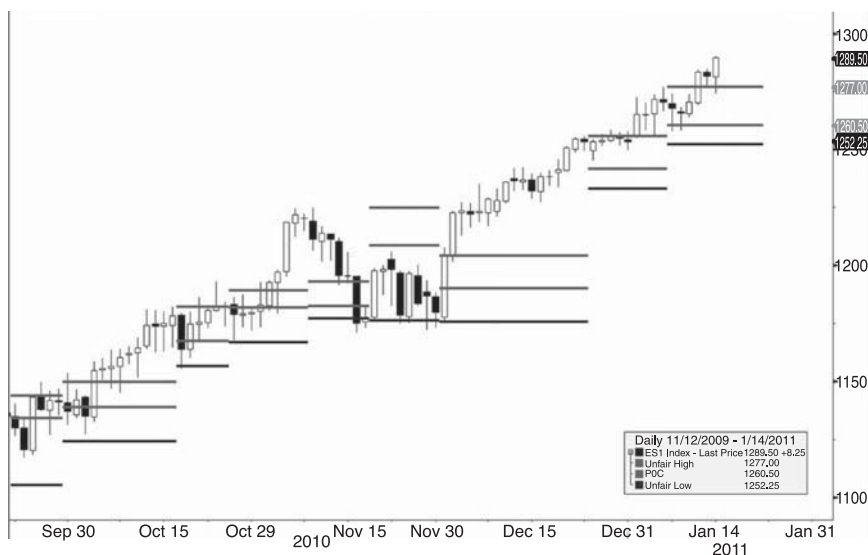
In Dynamic VAP's simplest use, when price is trading within the lines, the market is in balance—and when price is trading outside the lines, the market is in imbalance. We therefore use Dynamic VAP to maintain objectivity when determining phases of market development with the following set of objective guidelines:

Is the market trading above, below, or within the weekly and daily Dynamic VAPs? When a market is trading above the Unfair High on both daily and weekly time frames, it is a strong suggestion that the market is in vertical nondevelopment up. The opposite is true if the market is trading below the Unfair Low on both the daily and weekly time frame; in this case it would suggest vertical nondevelopment down.

When a market is mixed in its position or trading within a range of consolidation, it may be in horizontal development. We use VAP Map and our rules about identifying phases of market development to determine which characteristics fit the present market. For example, the daily chart may be under horizontal development while the weekly is still downtrending in a vertical move. We know that new vertical moves start from horizontal—and they manifest in smaller timeframes first. So we look for one of two events to occur based on the daily chart:

- Is the daily pausing here horizontally to resume the downtrend?
- Is the daily pausing here to begin a new uptrend?

To get our answer, we repeat this analysis using the next-smaller time-frame, the 60-minute, and compare it to the daily. This top-down, stepwise

FIGURE 5.29 TAS PRO Dynamic VAP on Multiple Timeframes

refinement process takes our analysis to the point where we have confirmation that a change is in fact taking place, and we adjust our tactics accordingly. (See Figure 5.30.)

Do the Dynamic VAPs overlap? If so, by how much? Significant overlap of consecutive Dynamic VAPs is often an indication of horizontal development while progressively higher or lower consecutive Dynamic VAPs is indicative of vertical nondevelopment.

Is the migration of consecutive center POC lines higher, lower, or mixed? Similar to the evaluation of the progressively higher or lower sets of Unfair Highs and Lows, higher or lower consecutive POCs indicate that a trend is continuing.

Are the Dynamic VAPs beginning to narrow or widen? The narrower the price range between an Unfair High and an Unfair Low—and the tighter the area of support and resistance—the more coiled the market is becoming. And consecutive higher or lower Dynamic VAPs that are narrowing tell us that volatility is decreasing and we are getting closer to horizontal range development. Wider and wider Dynamic VAPs tell us that volatility is increasing and this is where we will use TAS PRO Navigator to watch for trend exhaustion (magenta bars in the momentum histogram).

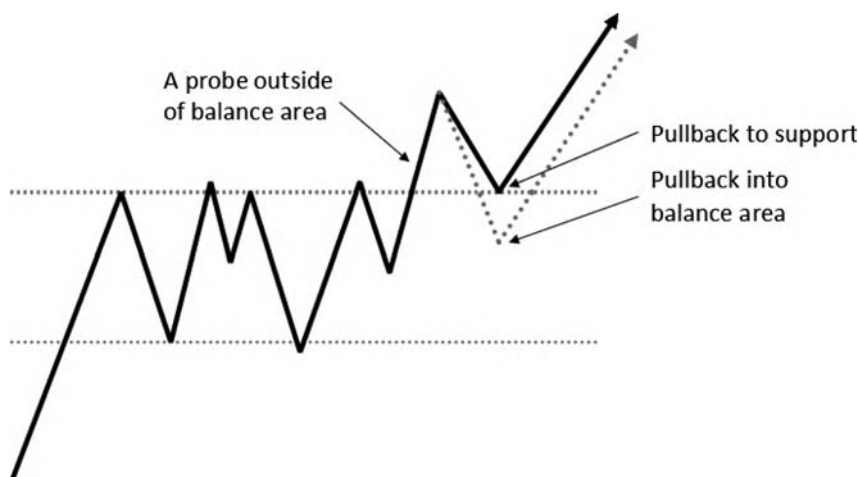
Are the Dynamic VAPs acting as reliable support and resistance areas in the current move/phase? Based on the observations of the VAP Map and the answers to the foregoing questions, we can make reasonable assumptions about the present phase of market development in any time frame. This decision defines where the Areas of Opportunity are as well as determines which strategies and tactics to use.

VAP Map and Dynamic VAP provide concrete and objective levels that allow market professionals to know when and at what price levels the phase of development is confirmed or invalidated. And when invalidated, a new trade premise and analysis process begins. The great advantage of this type of analytical approach is that it is based on objective information that helps market professionals develop trust and confidence in their analyses.

A Trading Plan for Trade Locations, Entries, Stops, and Targets

Each phase of market development has specific tactics according to the TAS PRO Approach to Trading and Market Analysis. Before we consider the different types of trades based on market development, let's first cover two basic tactics that we will refer to: the Probe and Pullback and the Reversal and Retest.

FIGURE 5.30 TAS PRO Dynamic VAP on Multiple Timeframes

FIGURE 5.31 Breaking Away from Balance Area

The Probe and Pullback, which is illustrated in Figure 5.31, is a technical setup where the market has broken from a phase of horizontal development (balance) to probe prices beyond one of the current extremes of the range and has then retraced back to or into the area of balance. The expectation is that after retesting the balance extreme or the HVA, the market will reassert itself in the direction of the probe and make a directional move. The retest of the balance area after the “probe” outside of balance should not retrace any further than the HVA of that balance area. Trade entry in this setup can occur at any point between where the balance area extreme is retested to the lower limit of the HVA (long setup) or the upper limit of the HVA (short setup). A stall in this area or an indication of support/resistance while in this zone (such as a balance on a smaller-degree timeframe) is a potential entry into this type of trade. A retrace through the entire HVA of the balance area invalidates the setup.

Figure 5.32 is an example of a Probe and Pullback.

The Reversal and Retest, which is illustrated in Figure 5.33, is a technical setup that can occur when a Probe and Pullback setup fails or when the pullback portion of that setup shows no sign of stall or small-degree balance and price trades through the HVA of the balance area in an aggressive/persistent fashion. The key to this setup is the piercing of the HVA of the balance area in an initiative way. Once broken, entries into this type of trade can be taken upon a retest of the range or of the HVA. Fading extremes of smaller-degree balances or taking smaller-degree trade setups once the HVA is broken and/or once the opposite extreme of the balance is broken is also appropriate.

FIGURE 5.32 TAS PRO VAP Map on Russell E-Mini Breaking Away from and Pulling Back to Balance Area

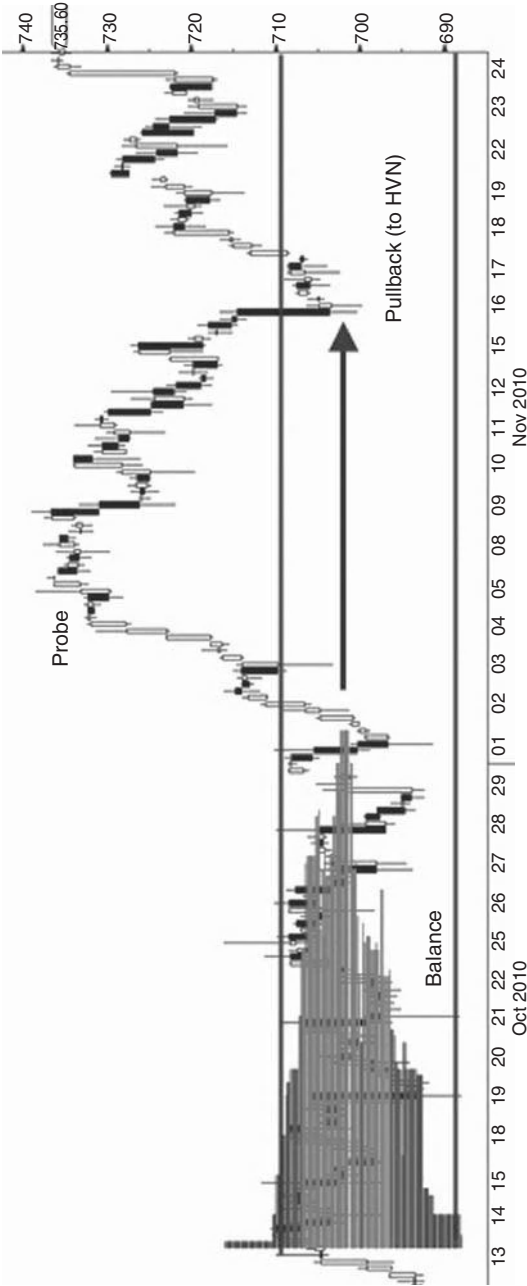


FIGURE 5.33 Breakout Higher, Reversal to Balance Area and Then Breakout Below with Retest of Lower Balance Extreme

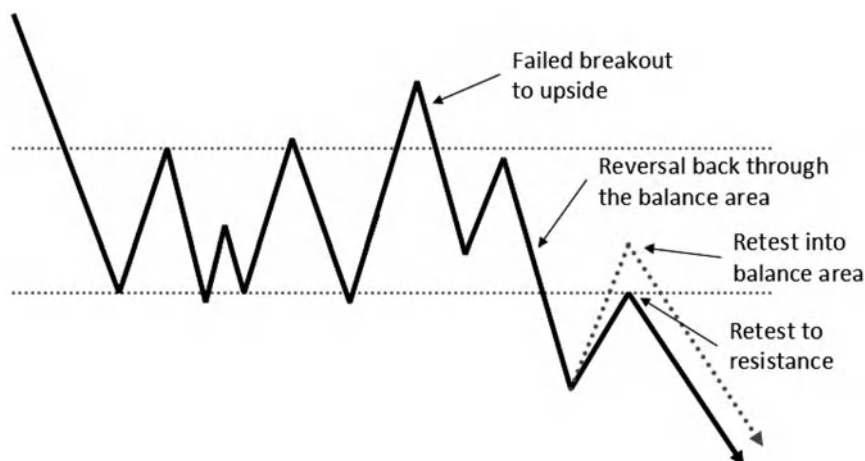
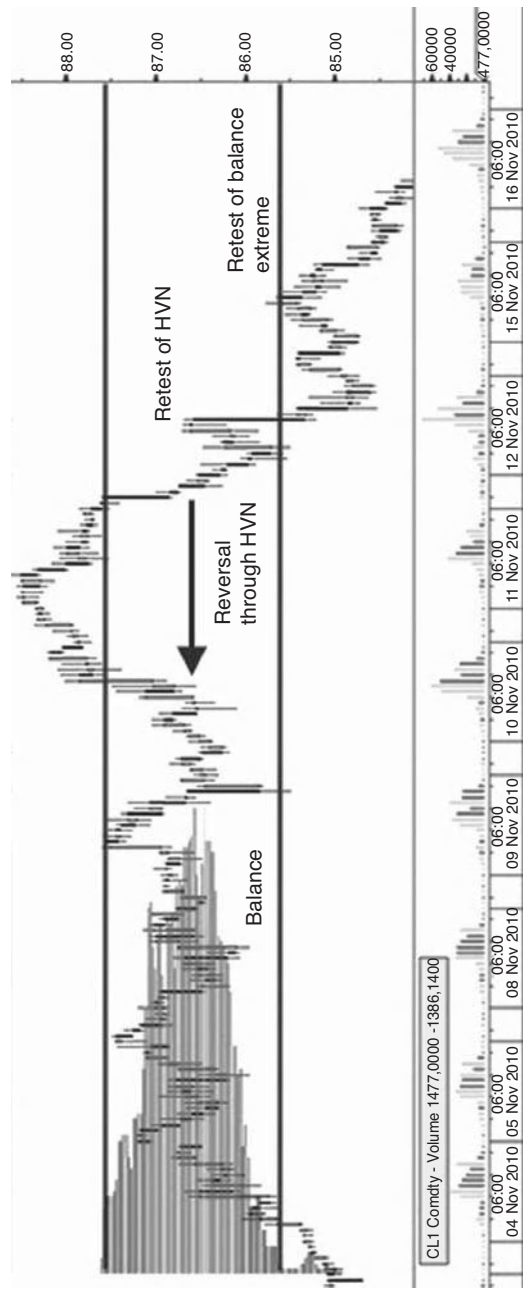


Figure 5.34 is an example of a Reversal and Retest.

Mature Balance Trades

- A. Fade a test of the High Value Area (HVA) favoring the price side of the HVA (long above the POC, short below POC).
 - Stop placement is beyond the opposite extreme of the HVA.
 - First target is the extreme of the balance area.
 - The intention of taking a trade near the HVA in a mature balance is in anticipation of the transition to a new phase of vertical development so second targets and beyond will be outside the immediate structure (the mature balance area).
- B. Trade off a smaller scale balance that forms just above or just below the HVA, either by fading the extreme of the small balance or by using a Probe and Pullback setup.
 - Stop placement can be beyond the extreme of the smaller balance area or beyond the extreme of the HVA of the larger structure.
 - First target is the extreme of the balance area.
 - The intention of taking a trade near the HVA in a mature balance is in anticipation of the transition to a new phase of vertical development so second targets and beyond will be outside the immediate structure (the mature balance area).

FIGURE 5.34 TAS PRO VAP Map on Crude Oil Reversing Breakout Higher by Testing Lower Extreme and HVN and Then Breaking to the Downside



- C. Fade the extreme of a smaller scale balance that forms at the extreme of a larger scale balance, anticipating a transition to a new phase of vertical development in the larger degree.
 - Stop placement is beyond the extreme of the smaller balance.
 - First target is beyond the extreme of the mature balance area range as a transition to a new phase of vertical development is the anticipated move.
- D. Take a Probe and Pullback trade if an extreme of the mature balance is broken and then price revisits extreme of the mature balance area or retraces into the HVA.
 - Stop placement can be determined by using a smaller structure or setup; otherwise, stop placement is beyond the opposite extreme of the HVA.
 - First target can be the extreme of the Probe, but this setup is designed to take advantage of a transition to a new phase of vertical development, which should put the targets beyond the Probe's extreme.
- E. Take Reversal and Retest trade if Probe and Pullback trade setup does not manifest or if it fails.
 - Stop placement is determined using a smaller structure or setup; otherwise, stop placement is beyond the opposite extreme of the HVA
 - First target is determined by larger structure, as a transition to a new phase of vertical development is the anticipation.

Early Stage Vertical Development Trades

- A. Take position in the direction of the new vertical development on retrace-ment tests of smaller HVAs that form along the way. Stop placement is beyond the balance area extreme of the prior smaller balance that is being used to target entry.
- B. Take Probe and Pullback trade to the HVA. Stop placement is beyond the opposite extreme of the HVA.
- C. Take smaller Probe and Pullback trades in the direction of the new vertical development. Stop placement is beyond the extreme of the HVA at minimum and for smaller structures often requires stop to be beyond the extreme of the balance area as the smaller structure HVAs are less robust.
- D. Fading extremes of smaller balances in favor of a new vertical move. Stop placement is beyond the extreme of the smaller balance.

In each case of A–D, we determine the first target based on the larger-timeframe context because a new vertical development phase may be underway in the larger timeframe.

Mature Vertical Development Trades

- A. Take smaller Probe and Pullback trades against the direction of trend.
 - Stop placement is beyond the extreme of the HVA at a minimum and for smaller structures often requires stop to be beyond the extreme of the balance area as the smaller structure HVAs are less robust.
 - First target will be determined by smaller structures/balances to the left with the best opportunities being setups that include a low volume-at-price hole in the VAP Map. In these cases the target becomes the far side of the low volume-at-price hole.
- B. Take Reversal and Retest setup, using the last balance prior to making a top or bottom.
 - Stop placement is beyond the extreme of the HVA at a minimum and more often requires stop beyond the extreme of the balance that has been reversed through.
 - First target will be determined by smaller structures/balances to the left with the best opportunities being setups that include a low-volume hole in the VAP Map. In these cases the target becomes the far side of the low-volume hole.
- C. Fade extreme of smaller balance areas formed at potential top/bottom.
 - Stop placement is beyond the extreme of the smaller balance or beyond the top/bottom.
 - First target will be determined by smaller structures/balances to the left with the best opportunities being setups that include a low-volume hole in the VAP Map. In these cases the target becomes the far side of the low-volume hole.

Early Stage Balance Trades

- A. Fade a first or second test of the extremes of the newly establishing balance/range.

Note: This tactic requires careful observation as it will not yet be well defined and will usually require other supporting confluences or divergences to support this type of trade premise.

 - Stop placement is beyond the current extreme of the new potential balance area. Other balances to the left can be used as support/resistance and suggest where to place the stop as well.
 - First target is the opposite extreme of the new potential balance area.
- B. Fade a range expansion/extension (with the same caveat as in A above).
 - Stop placement is beyond support/resistance determined by structures/balances to the left.
 - First target is the opposite extreme of the new potential balance area.

- C. Do not take trades in the middle of a developing (early stage) balance as this is where the price movements are most random and the level of trade noise is the highest.

Reward-to-Risk Considerations

Without proper attention to reward-to-risk ratios, the advantage created by the foregoing approach can be completely nullified. The plan is to target trade locations and setups that provide a 4:1 reward-to-risk ratio or greater. One way to do this is to identify an Area of Opportunity in a larger timeframe and then use a smaller timeframe to locate a defined-risk setup (refer to the previous section, “A Trading Plan for Trade Locations, Entries, Stops, and Targets”). The objective here is to use the stop level from the smaller-timeframe setup and the target from the larger timeframe.

Trading Applications

In this section we examine in detail two trading and analysis application examples that employ many of the concepts discussed in this chapter.

Trading Application #1	Trading into a Profile Hole
Instrument Traded/Timeframe	Gold (GC1)/Daily Chart
Indicators Used	TAS PRO VAP Map + TAS PRO Dynamic VAP
Market Characteristics	Gold has been in a multimonth consolidation and is testing the unfair lows of the rotation/distribution. A hole in the VAP Map is highlighted in Figure 5.35.
Trading Premise	Buying unfair lows for rotational long or selling short a break into a hole

As discussed, markets are either *balanced* or *imbalanced* and we use VAP Map to make our determination as to which of these two conditions are prevailing:

1. Fat areas in profiles reflect a market that is moving slowly and horizontally through time in a well-defined price range—a *balanced* market. These are the areas of the market that lend technical support once revisited.
2. Skinny areas in profiles reflect a market that is moving rapidly and vertically through price—an *imbalanced* market. These are the areas of the market where there is a lack of technical support.

These skinny areas are known as *holes* in the market in the sense that where price/volume did not accumulate and develop horizontally, it leaves a hole in the chart. A *hole in a chart* is an area that expresses an absence of horizontal development.

A characteristic of holes is that when price revisits these areas, it more often than not tends to move rapidly and vertically since there are few technical support areas. Holes offer superior opportunities for directional trades.

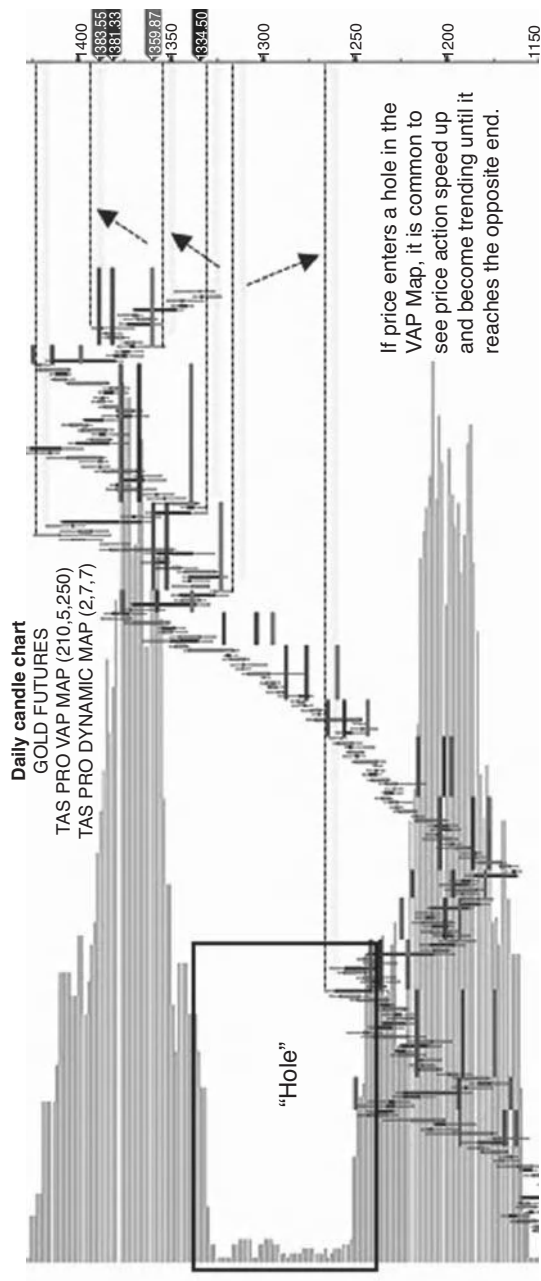
In Figure 5.35, we observe the following market conditions:

- VAP Map is displaying two distinct areas of horizontal development that envelop a distinct hole in the market—an area where there was a prior absence of horizontal development.
- The market is trading in the range of the upper balance area, exhibiting a mature market state.
- Price is very close to entering a low volume-at-price hole as shown by the VAP Map profile.
- After eight consecutively higher Dynamic VAP profiles, the current Dynamic VAP profile is lower, indicating a pause or stall in the market.
- Price has broken below the unfair low of the current Dynamic VAP, putting the market in a short-term downtrend as it approaches the intermediate-term Unfair Lows.

Our trading plan for these market conditions is one of the two following strategies.

1. Enter long
 - Entry should be as close to \$1,315 as possible and only if shorter-term charts such as the 60-minute or 15-minute indicate that the short-term downtrend is pausing (which will become apparent because a new Dynamic VAP on the 60- or 15-minute chart will form, identifying supporting volume entering the market).
 - Stop loss and/or stop-and-reverse below \$1,315, at \$1,309.85.
2. Enter short
 - On a break below the \$1,315 support, the bias becomes bearish and the expectation is that the hole will be traversed. Entering short on a break or using similar tactics on a 60- or 15-minute chart once below \$1,315 is appropriate.
 - Stop loss would be above \$1,315 and preferably above the high of the breakdown bar.

FIGURE 5.35 TAS PRO VAP Map and TAS PRO Dynamic VAP Illustrating Hole in Profile



We can further refine our trade timing by using multiple timeframes such as the 60- or 15-minute charts, mindful of our goal to act in the Area of Opportunity that is nearest \$1,315.

The target to the upside would be for trade back to the upper region of the high-volume area shown by the VAP Map or at least to the POC.

The target to the downside would initially be to the high-volume area below the hole and then to the lower end of that high-volume area as a second target.

Trading Application #2	Trading a Breakout from a Balanced Profile
Instrument Traded/Timeframe	S&P 500 e-mini generic futures contract (ES1)/daily
Indicators Used (Settings)	TAS PRO Dynamic VAP + TAS PRO VAP Map
Market Characteristics	The market is breaking out of a multiday balanced state that is denoted by a narrow-range Dynamic VAP in the area of an unfair high that is exhibited by VAP Map.
Trading Premise	Trade the direction of the breakout using shorter timeframes for entry.

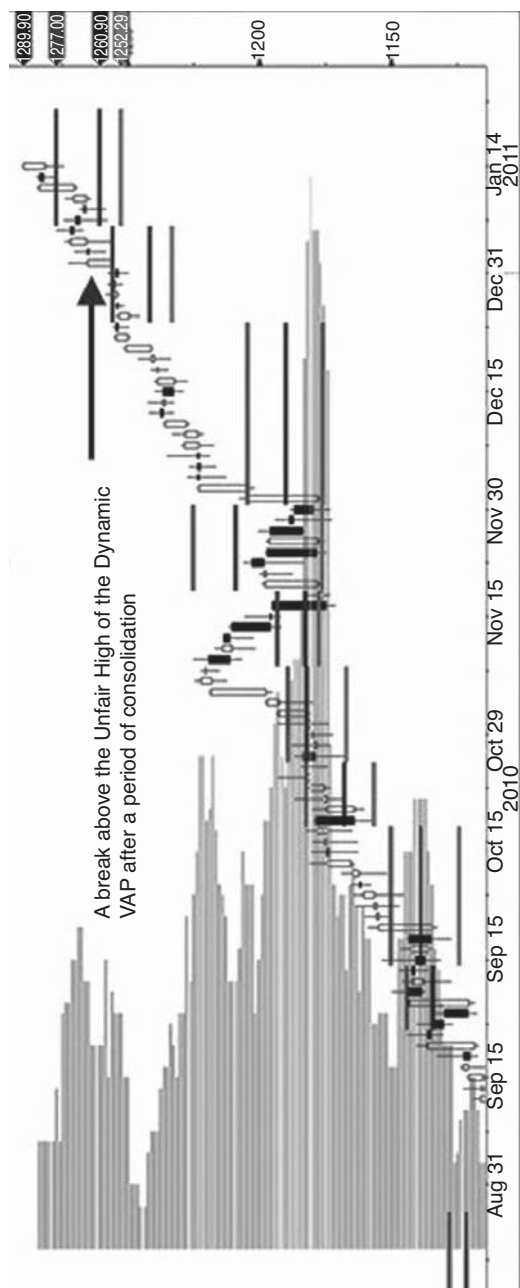
In Figure 5.36, we observe the following market conditions:

- The market is trending higher and VAP Map exhibits a narrow profile in the upper portion of the map.
- Current Dynamic VAP has clearly defined range.
- The top of the Dynamic VAP (at 1255.75) has been broken to the upside with a wide-range bar that closes near its high.

Our trading plan for these market conditions is:

1. Using support and resistance levels on shorter-term timeframes, in this case both a 60- and a 15-minute timeframe (not shown), is suggested for entry.
2. We will be looking exclusively for one of the following events and taking the following action with respect to the current support and resistance on 60-minute chart (not shown).
 - Long entry is taken at the bottom of the current 60-minute Dynamic VAP, as long as price is also equal to or higher than the POC on VAP Map.

FIGURE 5.36 TAS PRO VAP Map and TAS PRO Dynamic VAP on Daily Chart of E-Mini S&P



- Long entry can be taken on breakout of current 60-minute Dynamic VAP, mindful that this approach will require a larger stop.
- Long entry can be taken immediately if price is already above current 60-minute Dynamic VAP using 15-minute timeframe or lower.

We can further refine our trade to the long side in this case by using a shorter-timeframe Dynamic VAP and VAP MAP when the daily timeframe is trading vertical to the current Dynamic VAP and current POC on the VAP Map.

Initial stops on trade should be just below the top of the daily Dynamic VAP. Sixty-minute timeframes should be used to move stops as price moves more in favor of the trade.

Long trade targets to the upside can be considered at previous VAP Map Points of Control to the left in the chart. However, a new Dynamic VAP will appear when price is turning into a horizontal or consolidating state from a trending or vertical state. When this occurs at a previous VAP Map's POC, it is a very suitable area to observe how the market deals with this prior area of supply and then consider taking profits accordingly.

Conclusion

Our prop traders undergo rigorous training under high academic standards. We supplement the training with mentoring, a lot of hands-on coaching, daily post-trade analysis, and a team trading approach. Our trading technology solutions include the indicators discussed here (and several others) and go beyond that into real-time, rules-based signal-generation and decision-support tools.

But at the end of the day, it comes down to this: we have rules that we trade by—as all traders should—and our traders work from written trading plans that they are required to develop, write, review, and regularly update in their trading journals as part of their training regimen.

For our prop traders, our core set of trading rules is:

- Contrary to the saying, rules were *not* made to be broken. In the trading realm, rules exist to mitigate disaster, preserve profits, and minimize losses. Rule Number 1 is: follow the rules.
- Know what not to do—first—by eliminating one side of the market from consideration and getting your back against the wall. This is a mind-set. In

other words, our thinking is: you can go long, short, or do nothing. Looking too intently for what to do is a major cause for the perceptual blindness mentioned earlier (the clinical research on how we “get what we’re looking for” substantiates this). Instead, we train our traders to first determine what not to do by eliminating from consideration one side of the market. For example: “The market is in an uptrend in this timeframe, do not get short.” That leaves only two choices: get long or do nothing. You may miss an occasional short trade but when you can clearly and objectively say “no” to one side, then the other side starts looking pretty good. This is clearly a mind-set that needs cultivating but that has dramatic results, especially for newer traders. (More experienced traders are so used to just doing and doing that they have a hard time with this at first. But the logic behind it is irrefutable. If you’re looking to get long, you will eventually find something, but often it will be a substandard trade.)

- Measure the technical reward to risk from the charts and do not take any trades that are less than 4:1 reward-to-risk ratio (R:R). If you need to trade and can’t find a 4:1 R:R trade in the timeframe under consideration, drop down a timeframe or two until you find a 4:1 R:R opportunity.
- Know what to do and what the relative probabilities of success are in taking a trade; that is, don’t short uptrends and don’t buy downtrends. This applies to countertrend trading, as well. If you are considering a countertrend trade during a broad market uptrend, you have to ask yourself: “Is this the *best* possible trade opportunity at the moment—or just another opportunity that looks tradable?” This will help keep you honest and objective when considering trade selection.
- Trade the fast movements of the market, not the slow. If you need to trade the slow, drop down to a small enough timeframe and find the up or down trend that corresponds to the rotation in the larger timeframe.
- Trade the speed-up to-slow-down portion of the market but be ready for the speed-up portion near the end of the slow-down.
- Know when to execute—if at all—and consider smaller-timeframe setups to refine entries.
- Stay with your positions as the market remains fast or is getting faster (skinnier profiles).
- Tighten stops on fast positions as the market slows down (increasingly fatter profiles).
- Deploy strict money management disciplines, from pretrade reward-to-risk assessment combined with tight but realistic stop-loss and profit preservation levels throughout the life of a trade.

While the challenges in developing new discretionary traders' and seasoned market professionals' calls will always be there, we feel that our approach to being prepared for and trading the fast side of the market, supplemented by accurate and timely trading tools, is a method that will give us a continued edge in the markets.

Happy trading.

CHAPTER 6

Advanced Trading Methods

Rick Knox

Capital Markets Research, LLC

Throughout this book, you've been presented with some of today's most popular indicators and new groups of indicators that capitalize on the existing body of knowledge in technical analysis. In my experience, Market Profile, Candlestick Charting, and the DeMark Indicators™ are some of the tools that offer the most potential for success in trading. Over the years, I've come to discover that traders need additional assistance with interpretation, methods to measure time at risk, and tools to navigate trades. I use what I call Advanced Trading Methods (ATMs) to spot opportunities in the markets, and in this chapter I tell you all about them.

From the CBOT to the Charts

I remember the day that I walked onto the floor of the Chicago Board of Trade (CBOT) for the first time as an associated member with the privilege to trade any financial instrument. Before this day, my attitude had been that if others could do something, then so could I. I have always liked a challenge.

But the challenge I was facing at the CBOT was serious, much more serious than a sporting event or a card game, and it was a competition in which the unprepared were soon gone. Before the end of my first day, I would find out just how unprepared I was.

Basically, I had some money, but had never traded a futures contract, which in hindsight was rather arrogant on my part. Nor did I have any knowledge of market making (the job of the local). On top of this, I did not have a game plan for how to speculate. I thought I would be able to figure it out as I went. Yes, I knew I would probably lose a couple of times, but most of my experiences were of things that came easily to me. I felt that I would prevail.

I wanted to trade in the Bond Pit, which was adjacent to the main floor in an area called the South Room. The South Room and the Bond Pit were small compared to the main floor, where the soybean, corn, and wheat futures traded. Nonetheless, traders would flock in, jamming shoulder-to-shoulder, producing a unique scent of fear and greed that filled the room.

Before this day, I had never seen the South Room nor experienced the excitement of being there. Yes, the CBOE CBOT had mandated that new members pass a test on exchange rules, required us to understand the mechanics of the hand gestures essential to signal “buy” and “sell,” and provided us with a walkthrough of the grain floor. However, the member who provided our floor tour only pointed to the South Room and never took us inside. If I remember correctly, his comment was “those wishing to make their fortunes in our latest experiment, the bonds, go through that open area over there.”

So with the previous day of instructions, I headed straight for that opening. My first order of business was securing a place to stand. Without any knowledge of how important these spots were, I attempted to stand on the top step so I could see all the actions. Notice that I use the word *attempted*. The top step is reserved for the main brokers and certain big locals. I was immediately and forcefully ejected by almost everyone within reach. Some shouted at me, a few pushed me off the step, and others just laughed. Turns out the only place I could stand was at the bottom of the pit, where the rest of the new guys were standing. By the way, there is not much of a view from down there.

Now that my place was secured, my next step was to start trading. I had been through a mock trading session as part of my indoctrination by the CBOE CBOT, so I knew what I had to do. With some trepidation, but still showing confidence, I raised my hand in the air (which means I was willing to buy or sell, depending on the direction of my hand, up to five contracts) and began to shout “sell one at” just like everyone else in the bottom of the pit. No one would even look my way. So I shouted louder—still no one would trade with me. This went on for what seemed like hours and I began to wonder how I was going to make any money doing this.

Quickly I formulated a new plan of attack. I decided that in order for people to trade with me, I must increase my size. So on my first day—without ever trading a single futures contract in my life—I increased the number of contracts I was willing to trade. Big mistake! Then, to compound this blunder, I created a two-sided market where I was willing to buy or sell. An even bigger mistake! Almost immediately, I was hit by traders on the steps above me. They swarmed me like locusts demanding that I accept their trade. I was so confused by the time I had written down all the trades that I did not even know my count (the number of contracts I currently owned). And worse, the market had moved away from my position and I was staring at losses.

I began to panic as I tried to unload my positions. Again, no one would trade with me. The losses were growing by the moment and I was getting more frantic by the tick. All of a sudden, a trader from the top step decided to take my offer. After all was said and done, I was down a considerable percentage of my account size—all in a manner of seconds. “Welcome to the Pit,” someone next to me muttered. Throughout the remainder of the first day and several others that followed, I lost money on almost every trade. And by the end of the first week, I was pretty much demoralized. It was very clear to me I did not know what I was doing and that I did not have a plan.

The next Monday arrived and I found myself reluctant to even go to the floor. However, fortunately for me I did go to work. That morning, I was standing outside the pit, questioning my ability to understand when to buy and sell, how to recognize an opportunity, and how I would get out without losing. Basically I still had no plan or knowledge of how to succeed. Then an older gentleman who was a full member of the exchange walked up and started talking to me. He began the conversation with a question. “Struggling?” he asked. I answered, “Yes, very much so.” He then began sharing his insights, thoughts, and observations on how to win. He concluded by saying, “There are people willing to help you. Just look for them.” He then turned and walked out into the grain room.

He was right; there were other traders who were willing to help. And he was right in understanding that I needed more information before jumping in with both hands waving. From that chance meeting, I began a quest to meet and observe people who trade and discover what makes them successful. It has taken me on a journey that most would enjoy.

First, I stepped back and simply observed which members (or locals as they were called) traded effortlessly. Finally, I approached a few and asked for their help. Some did indeed help me, and with their guidance, I was finally able to make money. I stayed trading bonds for a while, but later followed one of the locals willing to help me over to the Chicago Mercantile, where I

traded in the Treasury Bill pit, which at the time was the most active on their floor. Eventually the bills were surpassed by the Eurodollar and S&P, which opened a year or so after I became a member.

After achieving moderate success as a local, I began having conversations with potential clients. Eventually I moved off the floor to work for a bond broker who wanted to start a Futures Commission Merchant (FCM) through Chase Manhattan. My customers were mostly foreign trading banks operating out of New York, London, and Tokyo. The change was a challenge, as the information that can be found on the floor was no longer available. The low cost to trade was gone. And the approach to making money was completely different. Thankfully, I was still on the quest to learn more, and Pete Steidlmayer—along with the Board of Trade—was introducing the Market Profile trading concept. Without hesitation I knew he could help me, and I attended his first class, where to my surprise there were only five attendees. During the early years with the FCM, I used the Profile to interpret the market. As it gained popularity, many of my clients wanted to learn how to incorporate it into their trading process. So I began sending them through Pete's classes. I must have sent him 200-plus traders in all. It was during this time that I met Tim Mather, owner of CQG, as this company was the first vendor to program the Market Profile and supplied Pete's classes with its product. After a few years, I accepted an offer from Tim to work at CQG as vice president of Global Sales and Marketing. My tenure lasted over nine years and sent me down a path of meeting some of the world's most interesting traders and developers.

Tim placed me in charge of several areas other than global sales and marketing, two of which were third-party services, and meeting with CQG's largest customers to discover their needs. This gave me carte blanche to travel the world and seek out the great traders and indicator developers of the time, a number of whom are in the *Market Wizards* books.

The responsibilities of the third-party services allowed me to help several people get started with their visions or indicators. I had already seen firsthand how a new vision (Market Profile) could improve one's understanding of markets. So I was eager to find others who could help. One such person was Steve Nison, who, while working for Merrill Lynch in Tokyo in the late 1980s, learned a new charting method unknown in the United States and Europe. It was called Candlesticks Charting. Steve could not find any chart vendor who would embrace this new approach. He eventually contacted CQG (me), and I found the candlesticks and their patterns to be very descriptive. So in early 1990, a decision was made that CQG would spend the programming time to introduce them. No other vendor in North America had them, but from this

effort, others had to follow. Within a few years, because of Steve's efforts and CQG, Candlestick Charting was on the menu of every quote vendor who published charts.

In 1994, Tom DeMark contacted me. Tom had made a decision to introduce his indicators to the world and was seeking a vendor. His first choice was CQG. Only a few days before Tom contacted me, Tim Mather had called and asked if I had read the article in *Futures* magazine about Tom DeMark and his indicators. I answered yes and we both agreed that this was someone we wanted as one of our third-party vendors, but neither of us knew how to reach him. Surprisingly, within a day of Tim's call, Tom contacted me, and we agreed to meet in Chicago where he could present his work. Before the meeting even began, I knew I was going to work out a deal with Tom, and within days of that meeting, CQG began programming his indicators.

While other indicators and charting methods have been introduced over the years, only a handful have changed the way people look at markets. These three—Market Profile, Candlestick Charting, and the DeMark IndicatorsTM—have accomplished what some others could not, and I feel fortunate to have been involved with all of them. And in many ways, I believe that the effort I have put into Advanced Trading Methods (ATM) and its data visualization tools will help change the way people look at markets as it tells a present-tense story of a market's condition across all timeframes.

Trading by Gut Feeling

When it came to the successful traders whom I sought out, some were open to talking, as most of them used CQG. They were interested in what we were building and I was fascinated with how they made money. When I first sat down with each one, I was expecting to see a clear-cut way that they entered and exited the market. I actually thought that each would see the same opportunity and all would act at the same time. What became apparent was that they each had their own unique way of entering the market (which did not necessarily coincide with other traders). And interestingly, many times their exits involved a gut feel for when the trade was over for them: most would say something like, "Time is running out on this trade." Hardly a trader could explain the *how* or the *why* of this exit due to time, but the ability to use the concept certainly separated them from traders who were solely focused on the entries. On top of this quality, they each had enormous control over their emotions during the trade. They could sit through some terrible equity drawdowns without it affecting their overall performance.

Beginning with the Profile and later emphasized with the DeMark Indicators, it became apparent that just the output of a line or bar was not enough. Traders needed additional assistance with their interpretation, methods to measure time at risk, and tools to handle the trade throughout its life. From all these experiences, meetings, and circumstances, I have been able to either develop, partner, or purchase the needed assets that could help answer these issues. I call these tools ATMs. Currently there are 14 such studies. They work in conjunction with one another, each with their own strengths. But used collectively and properly, they are a powerful combination.

What I learned from my experiences and how ATM deals with my observations is illustrated and explained in the sections following.

Understanding the Background of an Opportunity

Understanding is a key to success, and that knowledge refers to what is happening at that moment and provides you the ability to maneuver, adjust, and remain calm. You solve your problems or adjust to current circumstances with an understanding of the background or the overall condition of each timeframe, projecting forward, and realizing its contrast to the present.

Traditional bar or line charts provide a good deal of information about price but nothing about the conditions that surround it. Most charts are simply produced as light bars on a dark background or dark bars on a lighter background. Consequently, the question becomes how you interpret the action.

The ATM studies tell a story of the backdrop of the market by drawing a picture. The studies change the dark or light chart into a roadmap that helps you monitor the market's transition from bullish to bearish and back so you can easily integrate the studies, charts, and interpretation into your workflow. The picture begins with three studies used to determine the overall market conditions and trend identification. They are ATM Trend Bars, ATM Trend Lines, and ATM Trigger TSB (Trend Strength Bar) Line, the last of which is the most important. All three of these math models are used to define the condition of the current trend. With them, you can determine whether the current price activity is bullish or bearish and whether the current trend is about to start or end. With ATM, and its use of color, markets can be described objectively by their behavior instead of subjectively based on one's interpretation. And during volatile markets, the studies will help you instill rational behavior when fear can overtake you. Let's take a look at each one.

ATM Trend Bars

ATM Trend Bars are used to help define market conditions. Most charting programs use green bars to show a bullish condition, red bars for a bearish condition, and a default color (usually black) for a neutral—or undefined—condition. In Figure 6.1, you can see that trend bars were bullish from the start of the chart through the beginning of September and mostly bullish from mid-September to mid-November. From mid-November through to the end of the chart, trend bars showed bearish conditions with three short neutral periods. Figures 6.2–6.8 use this same data set.

ATM Trend Lines

ATM Trend Lines together with ATM Trend Bars further define a market's condition. Blue ATM Trend Lines represent a bullish market condition. Red ATM Trend Lines represent a bearish market condition. In addition, standard deviation bands, defaulted to the 3rd std deviation, can be added to the ATM Trend Line to help determine areas of temporary price exhaustion. The deviation value can be changed within the study's settings. I'm aware of some who prefer a lower setting and use price activity above/below the line as a breakout confirmation. See Figure 6.2.

ATM Trigger

The ATM Trigger is an oscillator comprised of three models represented by three lines. They are the ATM TSB Line (Trend Strength Bar), the ATM FT (Fast Trigger), and the ATM ST (Slow Trigger). Let's begin with the TSB.

The TSB line is the horizontal line found at 0 and 100 with 0 being bearish and 100 being bullish. Its primary function is to determine the trend's strength and help define the background of each timeframe—when it is present, look only for trades in its direction. The ending action of the TSB is a trader's first indication that the trend is trying to end. And its absence from the chart indicates the market is trying to change its characteristic and may morph into a new trend direction.

The ATM TSB line can have up to three different colors on either the bullish or bearish TSB line (represented in shades of gray in the figures in this chapter). The bullish TSB can have a light blue line, which indicates a rapid rise in the market price, a dark green line representing mildly bullish trend strength, or a bright green line that represents a strongly bullish trend condition. The bearish TSB line can have a magenta line, which indicates a

FIGURE 6.1 ATM Trend Bars Applied to the U.S. 10-Year Future

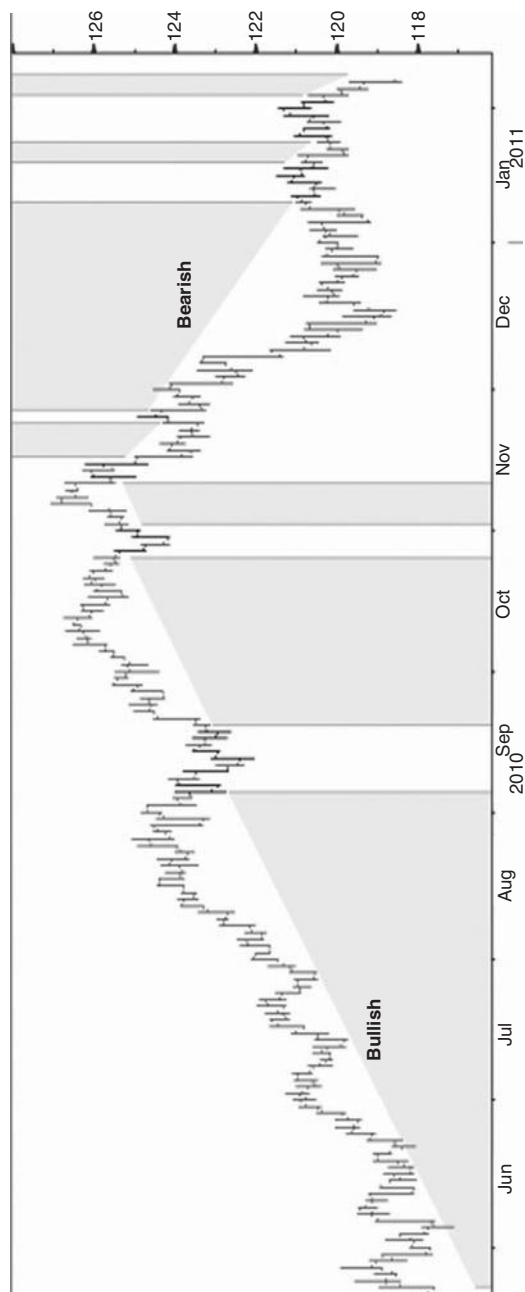
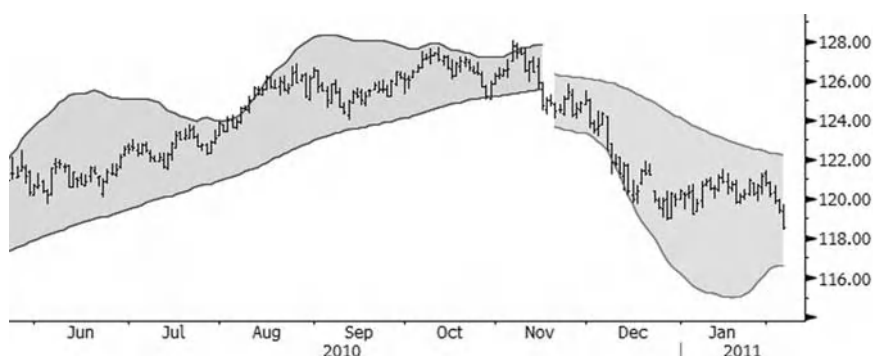


FIGURE 6.2 ATM Trend Lines Applied to the U.S. 10-Year Future

rapid break in the market prices, an orange line representing mildly bearish trend strength, or a bright red line that representing a strongly bearish trend condition. This is summarized in Table 6.1.

Under most circumstances, when a bullish/bearish ATM Trend Strength Bar is present, ATM will only enter trades from the long/short side of the market using the ATM Add On Alert and ATM Pullback Alert. We will also trade out or around positions using the ATM Exhaustion Alert and ATM Divergence Alert (more on alert types further on in this chapter).

A second line in the ATM Trigger is the ATM FT (Fast Trigger) Alert. It is the thicker of the two oscillating lines. The ATM FT line is used for two purposes.

1. As the final condition needed to initiate an ATM X Signal. The turning up/down from an overbought/sold condition is of highest importance.
2. As a tool for risk management.

Each X Signal (with the exception of the ATM Pullback Alert, which uses the ATM ST line) has a series of conditions associated with their mathematical

TABLE 6.1 A Summary of Signals from the ATM Trigger TSB

Bullish TSB	Signal	Bearish TSB	Signal
Light blue	Rapid rise	Magenta	Rapid decline
Dark green	Mildly bullish	Orange	Mildly bearish
Bright green	Strongly bullish	Bright red	Strongly bearish

output, with the final condition being the turning up or down of the ATM FT line. Once all conditions are met, including the turning up or down of the ATM FT, the alert is placed on the chart. In addition to being one of the main components of the X Signals, the ATM FT line is used to anticipate market pressure for approximately eight periods following its turn up or down. Our current research concludes that when the ATM FT turns up or down, price will move in the direction of the turn or sideways 66.32 percent of the time for a period on average of 7.583 bars. Having this time management tool allows us to eliminate a side, make assumptions on price movement, and monitor these assumptions over 7.583 (rounded to eight) bars with the color changes within the ATM TSB, ATM Trend Line, and ATM Trend Bar models.

The third line in the ATM TSB is the ATM ST (Slow Trigger) Alert. This is represented by the thinner, and as the name indicates, slower moving oscillating line. The ATM ST line is used for two purposes.

1. As an additional trend strength confirmation with the ATM TSB line
2. As the final condition needed to generate the ATM Pullback Alert

Monitor the ATM ST line for strength when it becomes overbought/oversold and remains in this condition. When it does, the market trend is strong and confirms the condition of the ATM TSB line. In addition, monitor the ATM ST line when it is overbought/oversold in the direction of the current trend as represented by the ATM TSB line. This condition does not occur often, but when it does, it will produce an ATM Pullback Alert.

In Figure 6.3, the ATM Trigger study has three lines; FT, ST, and TSB. The TSB (Trend Strength Bar) is the horizontal lines running above and

FIGURE 6.3 ATM Trigger Applied to the U.S. 10-Year Future

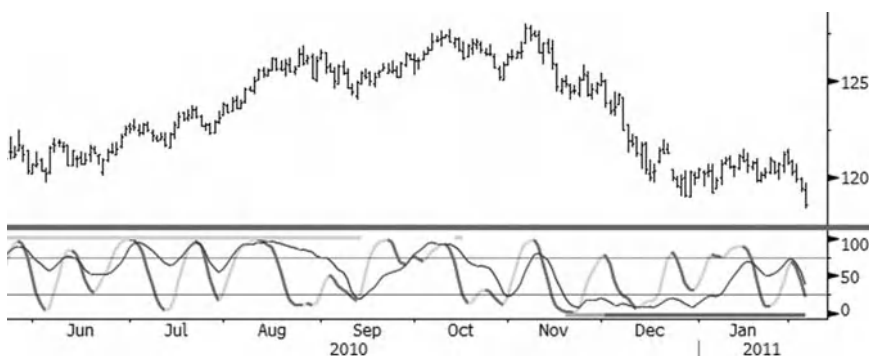
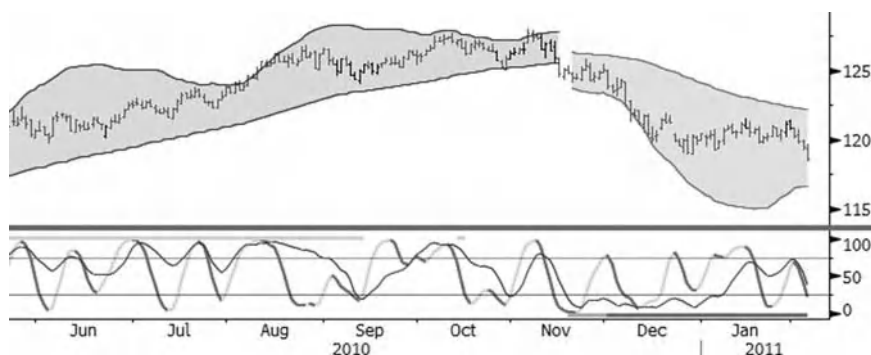


FIGURE 6.4 ATM Trend Bars, Trend Lines, and Trigger Applied to the U.S. 10-Year Future



below the FT and ST lines. When the TSB is on top it indicates a strong bull trend. When it is on the bottom, it represents a strong bear trend. Absence of these two lines indicates a trend that is in a potential transition.

ATM Trigger, Lines, and Bars

Figure 6.4 represents the ATM Trend Lines, ATM Trend Bars, and ATM Trigger study.

The process of interpreting this chart is as follows. From August through November, the ATM Trend Lines continually narrow, representing a gradual decline in volatility, which typically leads to a consolidation or topping pattern. In September, the ATM TSB line at 100 went from “Strongly Bullish” to absent. In October, price consistently failed at the upper ATM Trend Line deviation. In late October, the ATM Trend Bars turned bearish for two periods but held support. This was the first time in a long time they turned bearish. A few periods later, price tried to rally through resistance but failed and no ATM TSB line appeared to support the rally. Next, price broke the ATM Trend Line support and at the same time ATM Trend Bars turned bearish. Shortly thereafter, ATM TSB appeared at the 0 level with a “Mildly Bearish” signal. Then, before the rapid December decline, the ATM TSB signaled a “Strongly Bearish” condition.

Elliott Wave

Obviously ATM did not invent or create Elliott Wave counts. Nonetheless, several of the big-name traders believe in them. However, they are somewhat

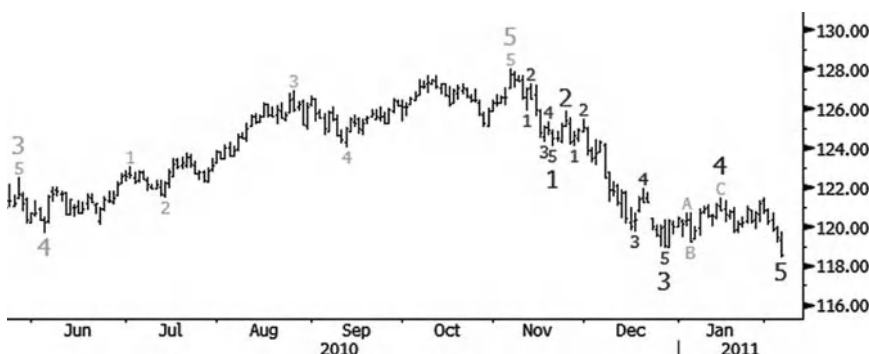
subjective and interpretative and the pure Elliott Wave practitioner spends endless hours with their counts. That being said, they provide a great roadmap for the trader. The issue for me was how you scale the process with so many securities in the world and timeframes. I felt ATM needed a way to provide these counts so I began searching for a method. I approached CQG to see if they would be willing to sell me their code. They said yes, and now ATM has the Elliott Wave algorithms that have been vetted in the marketplace for over 25 years. So for the first time, Bloomberg users who use ATM can obtain an Elliott Wave major, intermediate, and minor wave count across any timeframe and security charted within Bloomberg.

ATM Elliott Wave

It is sufficient to say that Elliott Wave analysis is complicated, but in very simplistic terms it can be classified into two parts (see Figure 6.5): (1) impulse patterns composed of five waves, Waves One, Two, Three, Four, and Five; and (2) corrective patterns composed of three waves, Waves A, B, and C. Wave Three, or C, has the greatest potential, followed by Wave Five.

One of the interesting things about Elliott Waves is that they are easy to see in hindsight—once you understand what you are looking for—but difficult in the present tense. That is why I like the ATM Elliott Wave study, as it attempts to explain the current price wave count. The study looks back over the last 1,000 bars of data and adjusts the wave counts based on the current price. And the study is self-adjusting. By this I mean that it is constantly trying to explain the current price action. So, as it changes so will the count.

FIGURE 6.5 ATM Elliott Wave with Major and Intermediate Waves Applied to the Daily 10-Year Futures Contract



They Say Entry Is Easy, but Not in My Book

Entry is easy—they say—unless, of course, you are a perfectionist, and then your entries become more important. Everything has to be right for a perfectionist. There is no room for error. I must confess I have a high degree of perfectionism in me. Entry is important to me, as I feel it helps me manage the trade. And to a degree that is true, if you get immediate or almost-immediate movement in your direction. However, one must understand the backdrop of the market or, in other words, what the longer timeframes are saying. In addition, your conclusion must have a solid fundamental reason supporting the decision.

Regardless, an entry is a single event, whereas monitoring your position is a continual effort. This monitoring must be void of emotion and solely based on market conditions of the moment. In other words, let the market tell you what it is doing using ATM, but don't be passive about it.

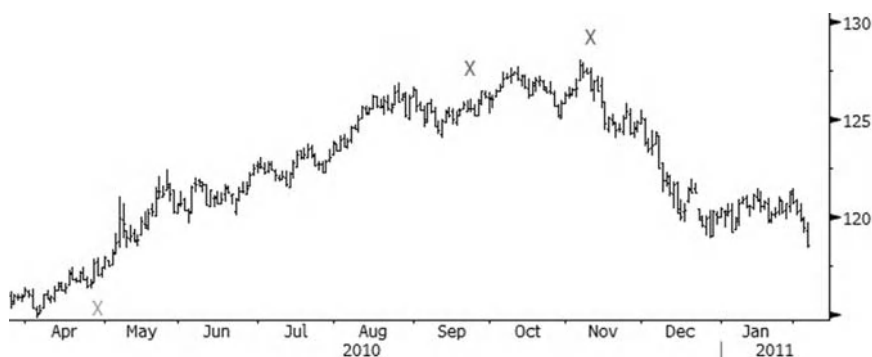
If you have a reason to get involved in a direction and you are looking for entry signals, ATM will help you with a series of entries called ATM X Signals across whichever timeframe you feel comfortable trading.

Currently there are six types of X Signals and each is shown in one of the next examples.

ATM X Alert

The ATM X Alert is designed to pick up the earliest possible condition that indicates a potential new bear or bull trend. It is a very aggressive contra trend indicator as it has little to no new trend confirmation. Represented by an X above or below the bar, this alert requires the previous ATM TSB line to end and the ATM FT line to move to an overbought or oversold condition shortly after the end of the ATM TSB line. During the ensuing eight bars, anticipate quick price movement and the overall condition of the market to begin changing into the new potential trend. Should these changes not occur over the specified time period, the new trend may not be developing as expected and you should consider exiting the position before any initial stop is hit.

See Figure 6.6. The ATM X Alert is represented by an “X” placed below the bar for a buy alert and above the bar for a sell alert. The signal is predicated on the ending of the ATM TSB line and the next cycle of the ATM FT line. It is a very aggressive signal as many times it has no new trend conditions confirmed.

FIGURE 6.6 The ATM X Alert Is Represented by an X on the Chart

ATM First Alert

The ATM First Alert is also designed to pick up the earliest possible condition that indicates a potential new bear or bull trend. However, unlike the ATM X Alert, the ATM First Alert has some new trend conditions present as defined by the ATM indicators. Represented by an arrow above or below the bar, this alert requires the ATM FT line to move to an overbought or oversold condition and then turn up/down while these early trend conditions remain present. During the ensuing eight bars, anticipate price movement and the overall new trend conditions to maintain and get even stronger. Should the trend conditions not continue over the specified time period, the new trend may be weak and you should consider exiting the position before any initial stop is hit (see Figure 6.7).

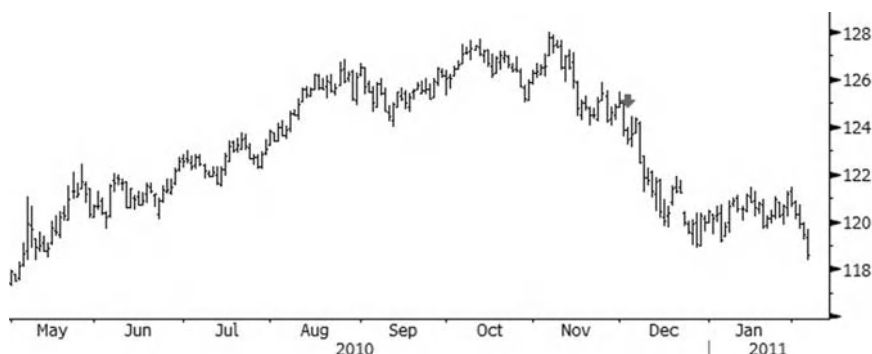
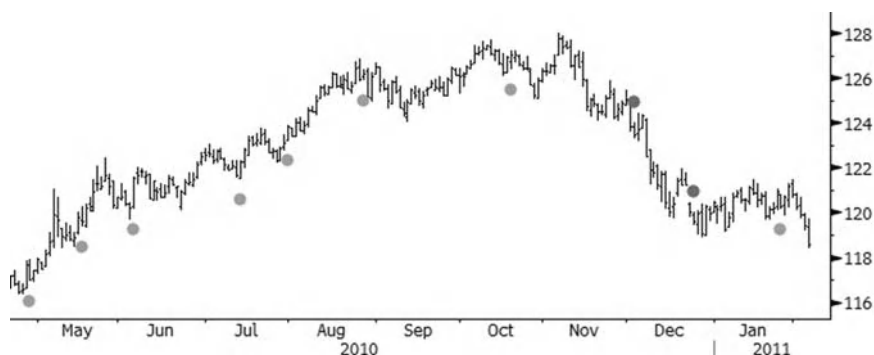
FIGURE 6.7 The ATM First Alert Is Represented by an Arrow: An Early Entry Signal after New Trend Has Been Determined

FIGURE 6.8 The ATM Add On Alert Is Represented by a Circle: It Identifies Breaks in a Bull Trend and Rallies in a Bear Trend



ATM Add On Alert

The ATM Add On Alert is designed to buy breaks in a bull market and sell rallies in a bear market while the appropriate trend conditions remain in place as defined by ATM. Represented by a circle above or below the bar, this alert requires the ATM FT line to move to an overbought or oversold condition and turn up/down while the current trend conditions are present (see Figure 6.8). During the ensuing eight bars, anticipate price movement, the current trend conditions to persist and price to advance past the previous highs/lows. Should market conditions change or price fail to move to new highs/lows, the current market trend may be losing its strength.

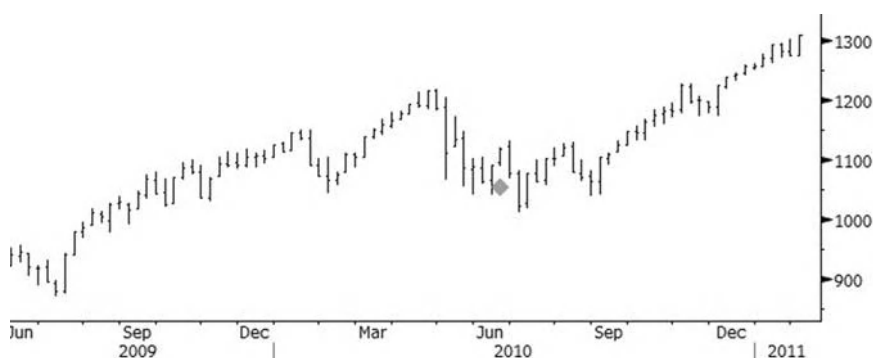
ATM Pullback Alert

The ATM Pullback Alert is designed to buy significant breaks/rallies in an established bull/bear market. In Figure 6.9, represented by a diamond above or below the bar, this alert requires the ATM ST line to move to an overbought or oversold condition and turn up/down while the ATM TSB line is present. During the ensuing eight bars, anticipate price movement, the current trend conditions to maintain themselves, and price to resume in the current direction of the trend.

ATM Exhaustion Alert

The ATM Exhaustion Alert is an aggressive contra trend indicator that locates temporary exhaustion points within a trend as defined by ATM. A strategy for some funds is to establish a large position and then trade in and out of

FIGURE 6.9 The ATM Pullback Alert Is Represented by a Diamond and Identifies Larger Tradable Breaks in a Bull Trend and Rallies in a Bear Trend



20 percent of that position throughout the trend. The ATM Exhaustion Alert identifies these potential areas for this strategy. See Figure 6.10. Represented by a square, the ATM Exhaustion Alert requires the ATM Fast Trigger and ATM Slow Trigger lines to be concurrently oversold/overbought—against the current trend as defined by the ATM TSB line—and the ATM Fast Trigger to turn up/down. During the ensuing eight bars, anticipate quick price movement; however, in most cases this is simply a pause in the current trend.

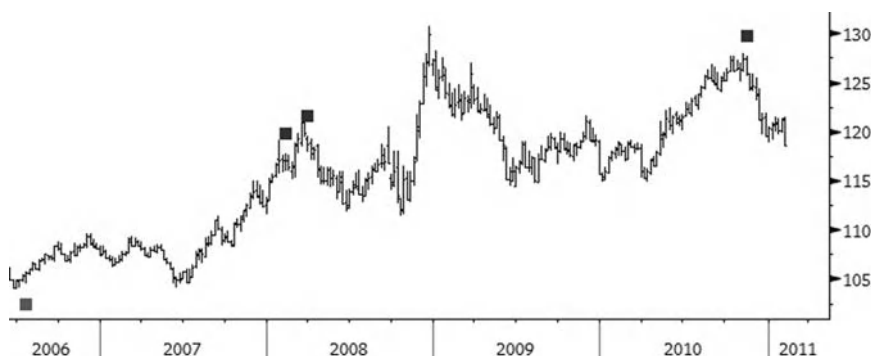
ATM Divergence Alert

The ATM Divergence Alert is an aggressive exhaustion condition that occurs against current trend movement. Represented by a square, it is designed to

FIGURE 6.10 The ATM Exhaustion Alert Is Represented by a Square and Identifies Potential Exits from an Existing Position



FIGURE 6.11 The ATM Exhaustion Divergence Is Represented by a Square and Identifies the Divergence of Price and ATM FT Values



locate an ATM Fast Trigger to Price divergence at significant highs/lows of the market. Typical divergences occur throughout a trend. However, only a particularly defined divergence that occurs at potential market extremes is picked up by ATM. Specifically, in the case of the ATM Divergence Alert, it requires the surrounding low/high of the previous ATM FT Cycle to be a significant low/high as defined by ATM (see Figure 6.11). This is followed by a premature turn up/down of the current ATM FT cycle coupled with a higher high/lower low than the last significant high/low. In other words, a new significant high/low is being made while the ATM FT is prematurely failing to cycle to an extreme overbought/oversold condition.

Trade When the Odds Are in Your Favor

Each of the traders I meet have looked for an edge or a way to have the odds in their favor when they entered a new position. I believe ATM provides an edge with its many data visualization tools or studies. One example of this is the ATM Trigger–FT line. When you use the FT line, it provides odds in your favor because when it moves up, the market usually moves up to sideways for approximately eight bars. If FT moves down, the market usually moves down to sideways for approximately eight bars. Our latest backtest of this behavior was over the past 10 years in the INDU. The test reflected that once the FT turned up or down it was followed by closes in the new direction 66.32 percent of the time and that the FT moved from overbought to oversold or oversold to overbought on average 7.583 bars. Plus, when you filter the FT direction with the longer timeframe trend utilizing ATM Trend Line, ATM

Trend Bars, and the ATM Trigger Line–TSB, they can increase the odds even more.

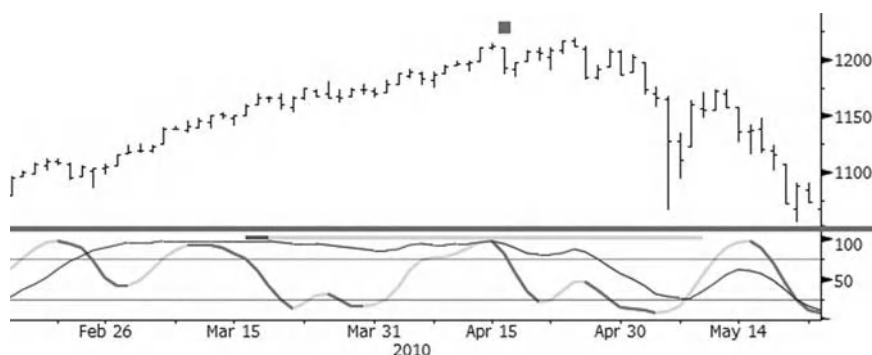
When you have an edge such as FT, you can give up the bid or offer to the market makers and still make money. However, trade location (where you place your trade relative to its position in the trend) is key. Plus you must understand the backdrop of the market. Using ATM on two timeframes will allow you an understanding of this backdrop. This is accomplished with ATM Trend Line, ATM Trend Bars, and the ATM Trigger Line–TSB. In the next section we take a look at some examples.

Don't Fight the Trend

A few of the traders would say “the market will punish those who try and fight it.” I had a hard time with this one as I first thought it meant you had to be a trend follower. My preference was and still is trend exhaustion. But I now understand that this means you can participate at the extremes if:

- The trend is about to end.
- Time is used to manage the entry.
- After the extreme, a change in the market condition occurs after a period of time.

Regardless of how you choose to participate at the extremes of a move, use the ATM Trigger–FT line to help you determine if the market is in an oversold or overbought condition. And following your entry, monitor the overall condition of the market during the preceding eight bars for a change of condition. For example, when you buy a market extreme, ATM would specify the overall market condition as bearish and would color the ATM Trend Bars red (indicating a bearish market). And of course, you would be expecting the market to respond to your purchase. But if the market does not begin changing the ATM Trend Bar coloring before one half-cycle of the ATM Trigger–FT line, ATM will still term the market bearish and the trend followers who have pushed the market lower will find the rally an opportunity to sell again. However, if the ATM Trend Bars do begin to change colors or the ATM Trend Line appears, it is an indication that the market could be starting a new trend. Therefore, when sellers return on the ensuing rally, they will find the market is stronger than expected and more likely to hold the lows created by the exhaustion, as the rally has begun its early transition. During the next full cycle of the FT, watch price. It should move up and the Trend

FIGURE 6.12 ATM TSB and ATM Exhaustion Alert

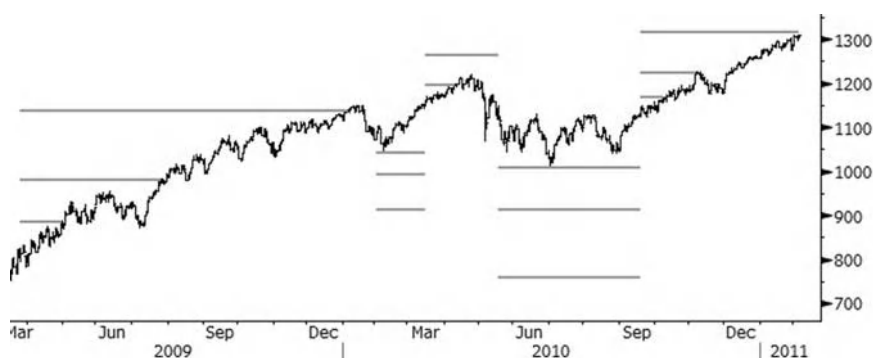
Bars should return to and maintain their green condition. Plus the ATM Trend Line and ATM Trigger–TSB line will appear. All these signs will alert you that the market is entering a new trend up.

Should you consider trading a bullish market event, you must (a) have a reason to do so, such as the ATM Exhaustion Alert in this example; (b) make sure the ATM Trigger FT line is also oversold and turning up; and (c) the market must change its overall condition from bearish to bullish, preferably before the ATM Trigger FT reaches overbought and turns down. See the example in Figure 6.12.

Another method to trade ending trend action is waiting for a quick vertical move in the direction you wish to trade. Then, wait for a price retracement that fails to take out the previous low/high created by the quick vertical movement, and then enter the market. ATM calls this pattern a “failure to continue” and this action is picked up within the ATM X signals and or ATM First Alert. The process is as follows: on the retracement, monitor the condition of the ATM FT line. Look for the FT to reach an overbought or oversold condition while monitoring price. Price should not go lower/higher than the previous low/high of the quick vertical movement.

Trade Location Is Key to Long-term Success

Obviously, if you are a buyer/seller of extremes, you will have a great trade location, should the current down/uptrend end. But if your trade develops into a trend, you will be presented with additional opportunities to entry using ATM Add On Alerts and ATM Pullback Alerts. The key to successful entries are their trade location relative to the ATM Target lines and the overall

FIGURE 6.13 ATM Trend Targets Will Be Identified Once a New Trend Is Determined

trend. Positions taken above ATM Target Level 3 have greater risk than those taken earlier in the trend as their trade location is poor. This does not mean that entries above these levels never work—they do, and this is evident by the success of the trend-following traders. However, when you do trade them or use other trend-following techniques, you must be aware that your trade should develop quicker than those with better trade location.

ATM Targets

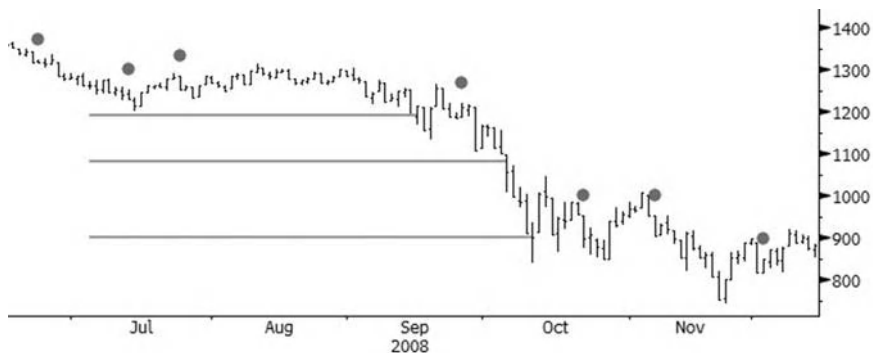
ATM Trend Targets was designed to assist you in identifying the location of your trade in the overall trend. Being aware of where your new trade is relative to the overall trend is important for a successful trade. Once a new trend is determined, ATM will present ATM Targets. See Figure 6.13 for an example.

ATM Targets with ATM Add On Alerts Above/Below Levels 2 and 3

For a new long position, be aware that entries greater than ATM Target Level 3 have less chance of success. Therefore, when you enter at these levels, make sure price moves in your favor rapidly. See Figure 6.14 for an example.

Adjusting to Volatility

One of the most-asked questions is, “What timeframe should I be trading?” The answer lies in your acceptance of risk. If I were to say the best timeframe is daily, but you must be willing to hold that trade for up to eight or nine days in order for it to develop, you might find that that period has an unacceptable

FIGURE 6.14 ATM Targets with ATM Add On Alerts Above/Below Target Levels 2 and 3

risk for you. So, you should adjust your own timeframe by dividing your maximum holding period by eight or nine. If you can hold an e-mini position for only 45 minutes, then you need to analyze the market on a five-minute basis. I find my timeframes are determined by the volatility of that specific market and the amount of leverage I am utilizing. The size of the position relative to my portfolio plus the volatility reduces my holding period.

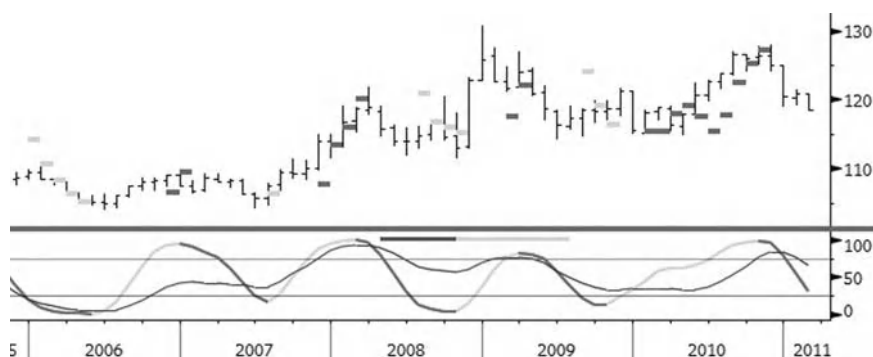
Anticipating What Needs to Happen

There are some trading theories that suggest you should not anticipate what is going to happen to your position. Those theories suggest you should let the market tell you what to do with the trade. ATM agrees with allowing the market to tell you whether to stay or exit. However, we believe you need tools to measure that, rather than depending solely on price or your gut feel.

But as you enter your position, we believe you should have some expectations about what the trade should do as well as what it can do against you. With the ATM Trigger FT line, ATM Trend Bars, ATM Trend lines, ATM Trigger TSB Line, and the ATM Trade Velocity study you can anticipate the next eight or nine bars.

ATM Trigger FT

ATM FT is used in risk management of a trade and moves from over-sold/overbought to overbought/oversold on an average of eight bars (see Figure 6.15). In addition, the FT potential turns are represented by short

FIGURE 6.15 ATM Fast Trigger

dashes above/below the current price bar when the price is near enough to change the direction of the FT.

So if you have bought a bullish or bearish market, you are expecting price to move—of course. You should also expect the chart bars to change color and the other study lines to begin changing colors.

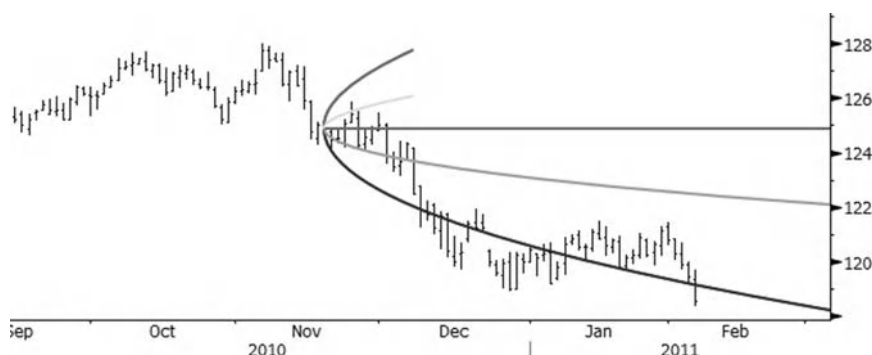
Using Time as Part of Your Risk Management

Begin utilizing time as part of your risk management. Adjustments to time and expectation of events over a period of time will help you manage trades.

The ATM Trade Velocity projects the potential profit and loss of your trade. It is based on the current volatility of the security with standard deviation confidence lines drawn outward from the new Trend or X Signal. Using this study, ATM provides you with an understanding of the initial risk of the trade over a selected period of time, plus the expected profit line.

Here is a simple example. You enter the market, place your stop, but price does not move over your given period (we use a half-cycle of the FT). Then, the market is telling you your trade is not working. Go ahead and move out of the trade before your stop is hit. Why wait on the stop, if the trade is not working? You must read the market, and ATM allows for that interpretation. We can be wrong, of course. And sometimes, you will exit your position and the market will take off in your original direction. You will be upset, but if you stay with this type of risk management, you will be improving your overall performance.

The next section is an illustration of the ATM Trade Velocity study and how it can help you with risk.

FIGURE 6.16 ATM Trade Velocity Applied to the 10-Year U.S. Future

ATM Trade Velocity

The ATM Trade Velocity study is based on direction and volatility (see Figure 6.16). It represents the potential profit over a continued 34 bars and the initial eight bars of risk based on the standard deviation of the current volatility. On the profit side of your trade, expect the market to move to and above the light-blue profit line. Should price over time hang below the light-blue area, most likely your security is weak and you should consider reducing or exiting your position. However, if your security moves above the darker blue line, you have an extremely strong market and you should consider ways to add to your positions. On the risk side of your trade, consider the yellow and red line areas to represent your risk potential. Be sure you don't place initial stops within these two areas, as price can and often does trade within it.

The 3:1 Risk/Reward Myth

The “risk \$1 for a \$3 dollar reward” theory is an ineffective money management rule that suggests you could always predetermine where to get out, but could not determine anything else. In this risk strategy, you accept whichever event comes first: if your goal was hit, you have a profit; if your stop was hit, you lose. It also suggests that with no additional understanding or talent, you are able to skillfully manage a winning trade to its maximum potential.

Over all the years that I spent learning from great traders, not one of them used this approach. In fact, they often laughed at traders who did. They suggested that I learn how to manage my trades, because they will rarely follow this pattern. And if the pattern is utilized, it will always result in a \$1.00 loss. ATM encourages you to learn how to manage with expectation and time.

Learning to Control Your Emotions

One of the most interesting traders I met was Ed Sakota. His entire focus was centered on his ability to control his emotions. Ed taught me how important this subject was, especially when it related to trading money. There is no way I can do this subject justice in a few sentences; however, I can tell you that without this skill, you will not necessarily fail at trading, but you will never be as successful as you could be.

The Hardest Part of Any Strategy Is the Exit

By far the most difficult decisions you will make will involve when to exit your trade. As I mentioned earlier, the traders I observed had an ability to understand when time was running out on the position. ATM believes your positions should be monitored at all times for the following attributes.

New positions must make some price movement in your favor within a preset amount of time. Should you not get any significant price movement within that time limit, *exit*. You can always reestablish the position later. If you are buying/selling exhaustion, the condition of the market must change to the direction of your position within a preset amount of time. Should no change in condition occur within that time limit, *exit*. If you are buying/selling with the trend, your trade location may not be ideal, so you must have quick acceleration of price and maintain the current condition of the market within a smaller preset amount of time. Should no quick movement in price occur or should you observe a change in the overall market condition, *exit*.

As the trend ages, the price movement has two effects. Higher trending price, particularly in equities, brings in additional buyers. Monitor for the conditions of your security on longer timeframes. Make sure the longer-timeframe condition concurs with the shorter. Plus, be aware of the longer timeframe getting oversold/overbought as it relates to the ATM Trigger FT line, as a change in direction of the FT in the longer timeframe will put pressure on price.

Lower trending price of a fundamentally sound company encourages buying (dollar cost averaging) all the way down. So be careful as you reach downside ATM Targets or certain trend exhaustion indicators. Expect a good company to return to an uptrend. And the lower you go, expect the lower prices to attract investors. Lower trending price of a fundamentally flawed company does not usually have the catalyst of dollar cost averaging. Therefore, it must have a positive fundamental change to bring about a fresh new set

of buyers. If you are short this type of company, monitor for changes in the ATM Trend Bars, ATM Trend Lines, and ATM Trigger–TSB line. When you begin to see the end of the TSB line, begin to consider exiting. Definitely exit once you see the TSB line in green condition and new buy signals emerging.

Some ATM customers use the ATM Exhaustion Alerts to exit or trade around positions, but not to reverse. Exhaustion Alerts should be used mostly to exit from existing positions and not necessarily to establish new positions from a single timeframe. If you do reverse utilizing an ATM Exhaustion Alert, the market must move very rapidly for you and the condition of the market must change within a short period of time—usually within six to eight bars. Otherwise, the market will resume its trend. In addition, the issue with trading around your position requires you to reenter your original position, often at a worse price.

Constantly monitor the ATM Trigger–TSB line for ending action, transitions, or a new beginning. This is one of the most important studies within ATM. The end of the TSB is an early indication that the trend is entering a transition that may reverse the current trend. When in the transition phase, the market should be monitored for a new TSB line in the opposite direction, plus changes in the ATM Trend Line and ATM Trend Bars.

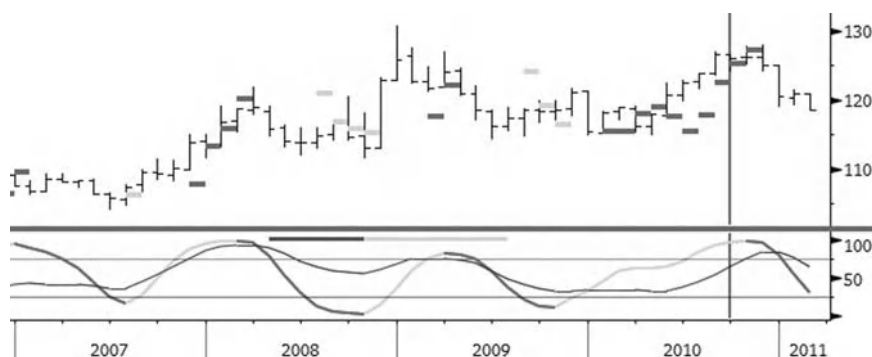
Putting It All Together: Two Examples

The following examples take a look at the long, intermediate, and short-term trend of the 10-Year U.S. Future and Goldman Sachs Group, Inc. As discussed earlier, this is my preferred way of determining the direction of trend: starting with the long-term chart, then considering the intermediate term, and finally the short term.

Ten-Year

From August 2009 until October 2009, the ATM FT downturning points were moving closer to the current price. Once price closes below one of these turning points, the ATM FT will turn down (see Figure 6.17). Based on our research, this will move price sideways to down for approximately eight months. Once the monthly ATM FT appears, we begin to monitor a lower timeframe for its alignment.

As price is moving closer to the monthly ATM FT turning point, we begin monitoring the weekly for its ATM FT turning point, which would

FIGURE 6.17 Monthly Chart of the U.S. 10-Year Future

place its new move in the same direction as the monthly (see Figure 6.18). In this case, we chose the weekly. The weekly began aligning with the monthly during the weeks of November 5 and November 12, 2010.

As each of the longer timeframes aligns, we await the next daily ATM FT turning point to act (see Figure 6.19). With the monthly close to turning in October 2009, the weekly moved to its position during November 5 to November 12, and the daily ATM FT turned down on November 9, 2010, within the week of November 12. Once the trade is made utilizing the daily turn in the ATM FT, we begin trading the weekly ATM FT overbought/oversold conditions in the direction of the monthly background for the next eight months.

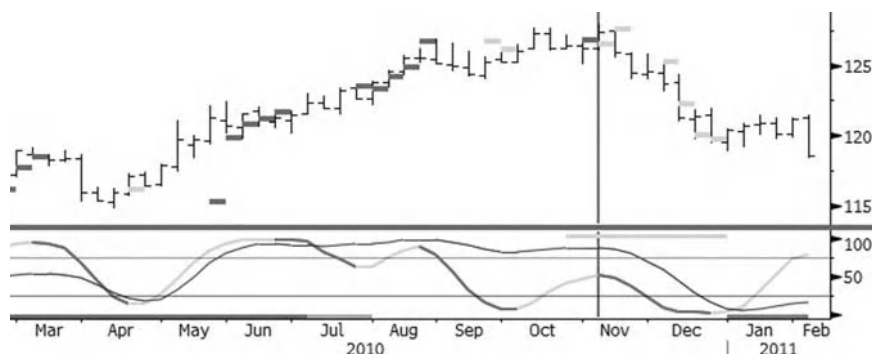
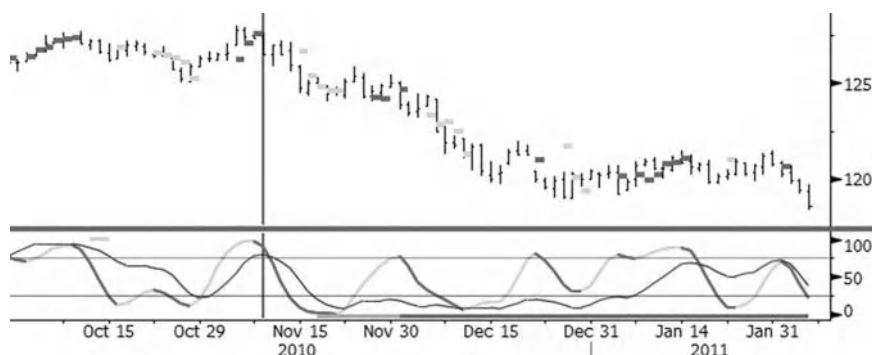
FIGURE 6.18 Weekly Chart of the U.S. 10-Year Future

FIGURE 6.19 Daily Chart of the U.S. 10-Year Future

Goldman Sachs Group

In Figure 6.20, the thick dashed lines on the upper price chart represent the price levels that would cause a bearish or bullish turn in the ATM FT line. During May 10 and June 10, the ATM FT upturning point was moving closer to the current price. Once price closes above one of these turning points, the ATM FT will turn up. Based on our research, this will move price sideways to up for approximately eight months. Once the monthly ATM FT appears, we begin to monitor a lower timeframe for its alignment.

As price is moving closer to the monthly ATM FT turning point, we begin to monitor the weekly for its ATM FT turning points, which would place its new move in the same direction as the monthly (see Figure 6.21). In this case, we chose the weekly. The weekly aligned with the monthly during the weeks of May 21 through June 4, 2010.

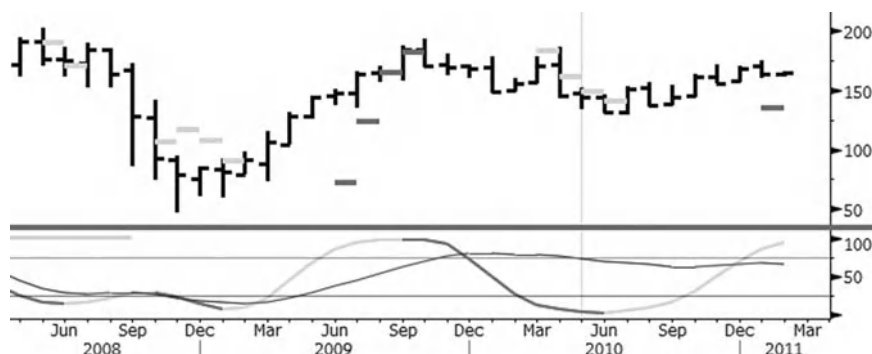
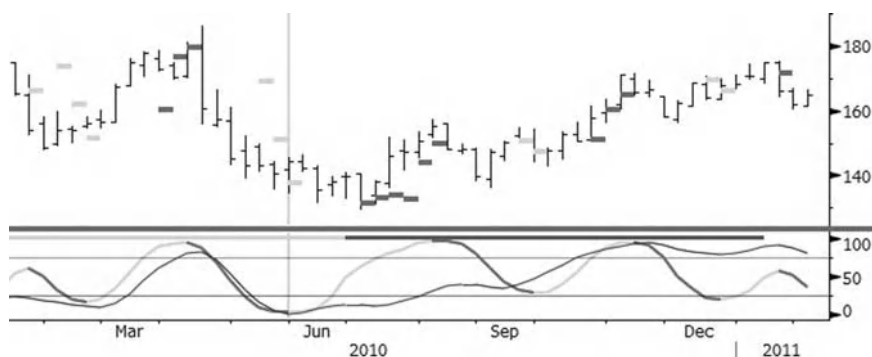
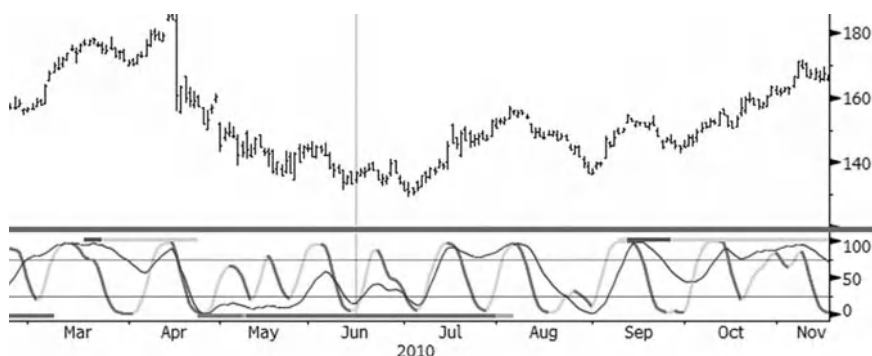
FIGURE 6.20 Monthly Chart of Goldman Sachs Group, Inc.

FIGURE 6.21 Weekly Chart of Goldman Sachs Group, Inc.

As each of the longer timeframes aligns, we await the next daily ATM FT turning point before acting. With the monthly near its turning between May and June 10, the weekly moved to its position during the weeks of May 21 and June 4 and the daily ATM FT turned up on June 15, 2010—after the FT turn-up of the week of June 4. Once the trade is made utilizing the daily turn in the ATM FT, we begin monitoring and trading the weekly in the direction of the monthly background over the next eight months (see Figure 6.22).

Picking Up the Right Tools

Once you have a successful trading method, add the tools that can help you, but keep your general principles intact. The best idea for you to trade

FIGURE 6.22 Daily Chart of Goldman Sachs Group, Inc.

and manage should always be your own idea. However, successful traders continue to update themselves and their approach. The traders who keep learning might not be the most successful in any given situation, but can keep trading and adapting as conditions change.

My life experience with trading has been unique. For years I have stayed in the background, while I have enjoyed the friendship and insights of several great traders and analysts. Some traders I was able to help, but mostly I was the one being helped. Recall the guidance given to me by an anonymous trader at the CBOE CBOT: “There are people willing to help you. Just look for them.” And now—with the help of my friends at Bloomberg and with encouraging words from Tom DeMark and others—I am stepping out from behind the curtain with all my experiences and tools to help you with these guidelines and examples of using ATMs.

Recommended Reading

Throughout this book, we've mentioned several publications and web sites where you can go to learn more about a particular trading method or tool. Here we list some of those publications and web sites mentioned in the book, as well as a few new ones to help you on your journey.

- Appel, Gerald, and Edward Dobson. *Understanding MACD (Moving Average Convergence/Divergence)*. Greenville, SC: Traders Press, Inc., 2008.
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- Markman, Jon D. *Swing Trading: Power Strategies to Cut Risk and Boost Profits*. Hoboken, NJ: John Wiley & Sons, 2005.
- Murphy, John. *Technical Analysis of the Financial Markets: A Comprehensive Guide to Trading Methods and Applications*. New York: New York Institute of Finance, 1999.
- Nison, Steve. *Japanese Candlestick Charting Techniques*, Second Edition. Upper Saddle River: Prentice Hall Press, 2001.
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Online Resources

The Bloomberg Professional Service web site: www.bloomberg.com/professional/
Information on Launchpad and Charts: www.bloomberg.com/professional/charts_launchpad/
ATM Homepage: ATM<GO>
Erlanger Homepage: ERLA<GO>
Kase Homepage: KASE<GO>
Relative Rotation Graph Homepage: RRGs<GO> and RRG<GO>
Research Reports: FKST<GO>
TAS Professional Homepage: TASP<GO>
Capital Markets Research, ATM Studies web site: www.atmstudies.com/
“Erlanger Chart Room: The Squeeze Play Advantage” web site: www.erlangerchartroom.com
“Good Morning, Wall St.: Perfecting the Art of Squeezeplay” web site for free educational videos: www.goodmorningwallst.com
Kase and Company, Inc., web site: www.kaseco.com
Phil Erlanger Research web site: www.erlanger.com
Phil Erlanger Research web site (for Bloomberg Terminal Content): www.erlangerresearch.com/BB/BBerlanger.asp
Phil Erlanger Research web site (for institutional clients): www.erlangerresearch.com
Relative Rotation Graphs web site: www.relativerotationgraphs.com
TAM Research web site: www.tamresearch.com
TAS Professional, LLC web site: www.tasprofessional.com
Talergruop Fiduciary Management web site: www.talergroup.com
Trade Angle Strategies (TAS) web site: www.tradeangle.com

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Paul is an Application Specialist in Technical Analysis at Bloomberg LP. He started his career with Bloomberg LP in 2005 and his multifaceted role interacts with many areas of the firm. He is Director of Core Product Training for In-Depth Technical Analysis Education, a weeklong internal program he created that is being instituted all over the world. He works with the Bloomberg Core Terminal Sales division by meeting with current and prospective clients to assist them with creating and implementing a technical strategy. He is the Product Development contact for the Americas where he researches and presents which technical tools may be added to the Bloomberg Terminal. He is also involved with the Marketing group where he influences the branding of charts and Bloomberg LP through new initiatives like *Bloomberg Chart Day*, a full day of technical analysis themed seminars in large cities around the world.

He is the author of the *Bloomberg Global Technical Strategy*, a subscription-based report discussing various areas of the financial markets. He also writes quarterly in the “Strategy” section of *Bloomberg Markets* magazine. Paul has guest presented for Bloomberg, the CFA, MTA, NYSSA, Traders Expo, and some MBA programs that offer Technical Analysis courses. He is involved in the Market Technician Association as the Chair of the New York Chapter and as an instructor in the CMT Institute. Paul graduated from the State University at Albany–SUNY with honors, majoring in Finance and Management, with a minor in Economics.

Phil Erlanger, CMT

Phil is the president of Phil Erlanger Research and has been providing research to institutions since the early 1990s. Prior to starting Phil Erlanger Research, Phil was Senior Technical Analyst for Fidelity Management & Research. Phil

came to Fidelity from Advest, where he was Chief Technical Analyst through most of the 1980s.

Phil has developed Erlanger Chart Room, a technical analysis platform that focuses on advanced technical indicators that include in-depth sentiment and seasonal studies. This platform runs on Bloomberg, eSignal, and MB Trading. He developed the www.goodmorningwallst.com educational and research video series that includes tutorials on how to use technical analysis in the real world. He is also a two-time past president of the Market Technicians Association, and in 1997 he won the MTA Best of the Best Award for Computer Assisted Analysis.

Phil has lectured at universities such as Rutgers, MIT, Boston University, Howard University, and Emory, and as an adjunct professor at Bentley College, where he taught a course in Technical Analysis. He is a graduate of Boston University with a degree in Economics.

Cynthia A. Kase, CMT, MFTA

Cynthia Kase taught herself technical analysis in the mid-1980s when electronic charting first began. She is now president of Kase and Company, Inc., a leader in charting algorithm innovation and the energy market's premier boutique trading and hedging consultancy. With a BS and ME in chemical engineering, she spent 10 years in the energy field. In 1983, Cynthia joined Chevron International and became an oil trader in New York. Not far from the NYMEX and its newly introduced oil contract, she discovered technical analysis, finding trading techniques that made engineering sense.

After Chevron, Cynthia worked for Chemical Bank as a commodity derivatives trader, and then consulted with the Saudi's Petronal office on technical analysis and risk management. In 1992, she founded Kase and Company, Inc., where she combined her engineering and trading experience to develop her groundbreaking indicators, now known as StatWare, and a new bar type, KaseBars.

She won the MTA Best of the Best Award in 1997, received the Key Women in Energy Award twice, and was the first American awarded the Master of Technical Financial Analysis designation from IFTA, 2007.

Julius de Kempenaer

After completing his studies in economics at the Royal Military Academy in Breda (1987), Julius served as an officer in the Dutch Royal Air Force,

and later moved to the financial sector in 1990. Initially he was a portfolio manager for Equity & Law Life Assurance (now AXA). However, he gained most of his experience as a technical and quantitative analyst at the Robeco Group, Rabobank International, and, most recently, Kempen & Company.

Julius is a regular speaker at international conferences, a frequent guest on CNBC and Bloomberg Television, and has written many articles on technical analysis. He is best known for his weekly column, “Het Financieel Dagblad,” which appeared for six years in the Saturday edition of the leading financial newspaper in the Netherlands.

Julius is co-owner of Relative Rotation Graphs Ltd., and is currently associated with Taler Asset Management Ltd. as director of quantitative strategies. Julius is engaged in the development and maintenance of quantitative models that are used in the management of the Taler funds, managed accounts, and Investment Consulting Services. Julius also provides specific technical and quantitative research to a select number of institutional clients.

Andrew Kezeli

With over 16 years of active trading experience and hundreds of thousands of trades to his credit, Andrew is a managing partner at Trade Angle Securities Professional LLC, a leading provider of institutional-quality trading tools, automation, signal generation, proprietary trading, and leading-edge educational courses for traders and market technicians in all markets.

A recognized expert in Market Profile[®] and Volume Analysis, Andrew is also Director of Education at TAS Professional and developer of many of Trade Angle’s proprietary trading tools and trading strategies. Andrew brings business operations, leadership, and master-trainer expertise to the TAS Professional product team by training product specialists, clients, and business alliances.

Andrew’s prior experience includes a successful career as a multidimensional trader in equities, index futures, and commodities. He was a software engineer and Senior Systems Analyst with Hewlett Packard. He appeared as a featured panelist and speaker at the Market Technician’s Association Annual Symposium in May 2010. He is also the founder and director of the Flora Foundation, a nonprofit animal rescue organization that has the mission of fostering, treating, and healing unwanted, abandoned, neglected, and abused dogs in “third-world” Asian countries, operated by a network of volunteer veterinarians and affiliate organizations.

Rick Knox

Rick has over 30 years of experience in brokerage, trading, and financial services businesses. He currently serves as the president of Capital Markets Research and is responsible for the oversight of market research, expanding global sales, customer education, and distribution of the ATM Studies through strategic partnerships and alliances.

Previously, he was the chief technology officer of Market Studies LLC, best known for its DeMark Indicators. He spent ten years with CQG, Inc./Franklin Trading Company as a senior vice president of Global Sales and Marketing. While at CQG, Rick established Franklin Trading Company, with responsibilities such as portfolio management, system development, risk management, and portfolio accounting. He spent 10 years with Lasater & Company, Inc., as an executive vice president, where he managed the consultative execution services for the firm's top tier of trading customers. Rick is also a member of the Chicago Board of Trade and the Chicago Mercantile Exchange.

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